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EDITED BY
FRANK P. FOSTER, M.D.

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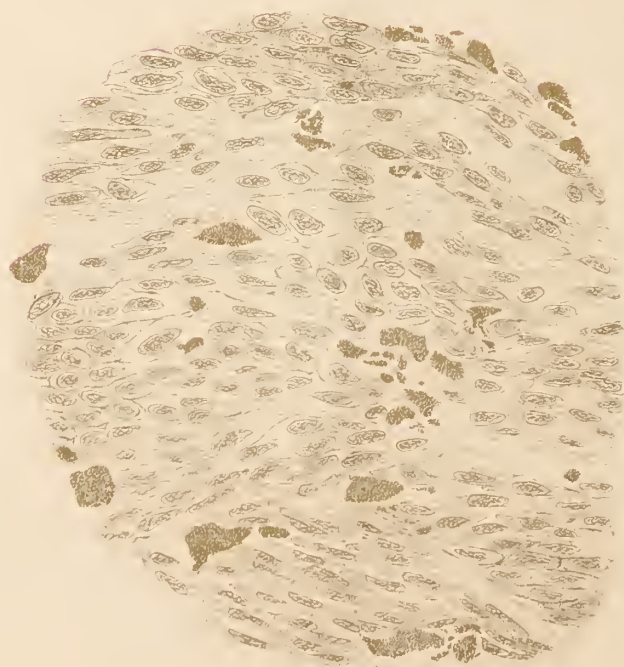
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DR. R. W. TAYLOR'S CASE OF PRIMARY MELANO-SARCOMA OF THE VULVA.



A SECTION OF THE LESS PIGMENTED PORTION .

Original Communications.

PRIMARY MELANO-SARCOMA OF THE VULVA.*

By R. W. TAYLOR, M. D.,
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ALL forms of malignant new growths—epithelioma, carcinoma, and sarcoma—upon the external genitals of the female are of exceedingly rare occurrence. When found on these regions, they are usually primary lesions, and exceptionally they occur as secondary deposits, or, still more rarely, by extension downward from the internal genital tract. While epithelioma of the uterus is far from common, it has been noted that from thirty-five to forty cases of it occur to one of the same disease of the external parts, yet epithelioma takes first place in the order of frequency of malignant new growths of the vulva. In medical literature the histories of so many cases of epithelioma of the vulva are given that its history and course are tolerably well known, and it has ceased to be a clinical rarity. Carcinoma and sarcoma of the vulva are exceedingly rare, and an extended study of the meager statistics relating to them seems to warrant the conclusion that the former is more frequent than the latter in the proportion of two to one. An attentive study of the literature of these cases is exceedingly disappointing, since their history is given in a very fragmentary manner, and a sharp definition of the nature of the cases is not made. In truth, much has yet to be added to our stock of knowledge of primary carcinoma of the vulva, and the same may be said, in the main, of primary sarcoma of this region, of which there are less than six indifferently recorded cases. Coming now to melano-sarcoma, the occurrence of which primarily in the eye, upon the skin, and in the viscera, can hardly be called common, we find but six satisfactory cases on record (and very vague mention of the subject in a few text-books) in which this new growth began upon the vulva. Primary melano-sarcoma of the vulva, therefore, may be considered as among the rarest of all forms of malignant new growths of these parts.

In this connection it is necessary to emphasize the fact that a number of cases of melanosis of the vulva have been reported which are really instances of melanotic carcinoma. The result is that confusion exists in the minds of many who have not clear ideas of these two forms of malignant new growths. The word "melanosis" should, therefore, be discarded since it is so misleading. Melanotic carcinoma has its origin in the epithelial structures; melano-sarcoma, like simple sarcoma, is a disease of the connective tissue.

In this essay I shall give the history of a personal case of primary melano-sarcoma of the vulva, and a synopsis of the cases of Göth, † Terrillon, ‡ Müller, # Haeck-

* Read before the American Association of Genito-urinary Surgeons at its third annual meeting, May 21, 1889.

† "Pigmentsarkom der äusseren Genitalia," "Centralblatt für Gynäkologie," October 1, 1881.

‡ "Mélanose généralisée ayant débuté par une petite lèvre de la vulve," "Annales de gynécologie," July, 1886.

"Zur Casuistik der Neubildungen an die äusseren weiblichen Genitalia," "Berliner klin. Wochenschrift," No. 31, 1881.

el,* Bailly, † and Fischer, ‡ all thus far reported, with the hope of throwing light upon the subject.

Melano-sarcoma of mucous membranes should be studied with the aid of our knowledge of similar conditions in the skin, since between the course of the two there are many analogies, though the disease of the mucous membranes is lacking in the rich objective symptomatology of its dermal congeners. It is important in this study to remember the following primary modes of development of melano-sarcoma:

1. The primary melano-sarcoma of the skin, which begins as one nodule, or as several small ones, on a pigment, mole or freckle, a vascular naevus, or on any congenital abnormality of the skin, or cutaneous outgrowth, upon or in consequence of any chronic hyperplastic process of the skin or as a result of mild or severe injury to a part. In all of these instances irritation or traumatism seems to be an important and essential factor.

2. The primary local melano-sarcoma, which may or may not become disseminated, which, from a want of knowledge of the causes which produce it, may be called idiopathic, and is sometimes of congenital origin. This form is akin to the first type.

3. The simultaneous multiple idiopathic melano-sarcoma, which, as a rule, begins upon the hands and feet, and from these regions invades the body, which has been called "Kaposi's" type, and is regarded by that observer as a general morbid affection from the very outset. In exceptional cases the disease begins, in unique form, elsewhere than upon the extremities, particularly on the various parts of the face and the trunk.

4. Melano-sarcoma originating in the uveal tract (the chorioid and its duplicatures).

5. Melano-sarcoma beginning in any of the viscera or in lymphatic ganglia (unusual).

6. Melano-sarcoma of the mucous membranes, conjunctiva, mouth, vulva, and penis.* This type is most frequent-

* "Ueber melanotische Geschwülste der weiblichen Genitalia," "Arch. f. Gynäk.," xxxii, 1888, pp. 400 *et seq.*

† "Tumeurs mélanotiques de la vulve," "Gaz. hebdomadaire de médecine et de chirurgie," 1868, No. 47, pp. 740 *et seq.*

‡ "Ueber die Ursachen der Krebskrankheit und ihre Heilbarkeit durch das Messer," "Dtsch. Ztschr. f. Chirurgie," xiv, 1880-'81, pp. 548, 550.

Primary sarcoma and melano-sarcoma of the penis are also very rare. After considerable search I have found the following cases: W. H. Battle describes ("Primary Sarcoma of Penis," "Trans. of the Path. Society of London," xxxvi, 1885, p. 271) a case of a man aged sixty. T. Holmes, in the same society's "Transactions," vol. xxiii, 1872, under the title "Melanosis of Penis," narrates the case of a man aged fifty-two. In Gross's "System of Surgery," sixth edition, p. 834, the case of a negro, aged forty-four, is given. In Guy's Hospital Museum a morbid specimen, removed by Golding Bird, is preserved.

My colleague, Dr. A. W. Stein ("Medical Record," May 21, 1887), has reported the case, with autopsy, of a man, aged thirty-three, with generalized melano-sarcoma, and with marked infiltration into the bladder, urethra, corpora spongiosa and cavernosa, testicles, and cord. No history of the primary development of the disease could be obtained.

The case of Démange ("Etude sur la lymphadénie," "Thèse de Paris," 1874) and Vidal has been quoted as an instance of primary melano-sarcoma of the glans penis, but its history shows that the disease began upon the extremities, and that in about three years the genital organ was attacked.

ly seen in the form of secondary deposits (using the word "frequently" with a due appreciation of the rarity of these growths). As a primary disease it is of great rarity, and as a type it should be classed with its kindred growths, outlined in subdivisions 1 and 2 (*vide supra*).

In a general way it may be stated that the conditions inherent in the tissues to the development of melano-sarcoma vary in progressive degrees, according to the amount of pigment which normally exists in them. For example, the uveal tract (the choroid and its folds) is the seat of by far the largest number of these new growths; the skin is much less frequently affected, and the mucous membranes much more rarely than the skin, in all of which tissues there is a decreasing ratio of pigment.

CASE I—*Personal*.—Mrs. X., aged sixty-two, the wife of a well-to-do merchant, mother of five healthy daughters, came under my care June 1, 1887. She had always enjoyed good health, had never suffered any injury to her genitals, nor, to her knowledge, had there been any abnormal condition of them, even slight. Her family history was excellent, and cancer was unknown in her family. The history obtained was as follows: About two years previously (she being then sixty years old), she experienced a slight smarting sensation in the vulva, and several times saw a little bloody stain on her under-linen. She then noticed a bluish streak in the sulcus between the large and small labium of the left side. This was followed in a few months by a small, round tumor, which was seated on the same side near the meatus urinarius, and, in a short time after, by a small pea-sized tumor to the right of the meatus. At this time there was a painful lump in the right groin. The vulvar lesions were pronounced to be cancer by Dr. Trenholme, of Montreal, who removed them with the knife in the latter part of June, 1886. The wound healed promptly, showing no trace of the neoplasm. About two months later she noticed a little blue spot to the right of the urethra, which grew rapidly until October of the same year, when it was excised by Dr. Trenholme. About this time it was observed that a marked swelling existed in the left groin, and it was thought that the lump in the right groin had become smaller. About November of this same year another small blue, wart-like tumor was observed a little to the right of the meatus and extending to and along the upper right-hand margin of the introitus vaginae. From that date until June 1, 1887, a period of about eight months, this new growth increased in size, and about April a smaller growth began to the right and just above it, on that portion of the labium minus which draped off from the clitoris. The appearance of the lesions as I first saw them are well shown in the colored plate. The large tumor was of a bluish-black color, perfectly smooth, homogeneous, and slightly shining on its surface. It looked like a ripe plum, except that it was conical on its upper end, near the clitoris. It was about an inch and a half long by an inch and a quarter wide. Its structure was firm, but compressible with moderate force. It was firmly adherent to the mucous membrane on the right of the vaginal orifice, and its base, which was about an inch in diameter, encroached up to but did not involve the meatus urinarius. Traction upon the tumor caused elevation of the subjacent tissues with it. The tumor, thus growing on the right side of the vagina, inclined inward and stopped up the vaginal orifice like a plug. The smaller tumor was evidently seated well under the mucous membrane, which, being mildly stretched, allowed it by its translucency to shine through as an oval mass which was quite firmly fixed to the subjacent tissues. The two tumors were continuous with each other. There were no inflammatory com-

plications, nor was there a particle of abnormal discharge. In the right groin were a number of hyperplastic ganglia matted together in a tumor of the size of a walnut. The left groin showed marked salience in its middle portion. Here was seated a hard, slightly lobulated, conical tumor, the base of which seemed fully three inches in diameter, and its obtuse apex protruded fully an inch above the normal plane, being covered with healthy skin. Examination showed that the hyperplastic ganglia were quite firmly adherent to the deep fibrous tissues, and that the mass could be moved slightly by sliding it, but could not be pinched up.

The vulvar lesions caused the patient much mental anxiety. The presence of the large tumor caused local uneasiness, especially on lying down, and it was a slight impediment to urination. The recurrence and persistent growth of the tumors, the thought that they were incurable, and the fears of possible untoward complications, preyed on the patient's mind and kept her in a state of constant terror. This was shown, in a measure at least, in her great emaciation, her want of strength and of appetite, and her troubled look. Both she and her husband insisted that the vulvar tumors should be excised. To the latter I explained that such an operation could only be palliative, and that the leaven of the disease would still remain in the infiltrated ganglia, which could not be operated upon with any certainty of thorough extirpation, and which would necessitate an operation-wound of some size. The fact of the former relapses was also emphasized, and the possibility of a similar recurrence dwelt upon. On the other hand, the amenability and accessibility of the tumors to ablation and the possibility of perfect healing (as we so frequently observe after the removal of sarcoma and pigment sarcoma) were also brought forward, and it was decided that the operation should be performed. This was done June 16th in the presence of Dr. Morrow and Dr. Trenholme. Having made traction upon the tumor, I snared it with a galvano-cautery wire, heated to a dull-red color, as near its base as I could get. When the wire was well imbedded in the tumor, the battery (which had just come from the maker's hands in supposed perfect condition) gave out. I then cut off the tumor just above the normal level of the labium minus, and proceeded to get the base away piecemeal. This was a long, tedious task, and was best done with my thumb-nail by persistent but cautious gouging, scraping, and pinching manipulations. In this way I removed all of the morbid tissue and exposed the fascia, which looked as smooth as one's palm. Care was taken that no minute specks or filaments of the neoplasm were left in the contiguous territory. The hæmorrhage was very slight. The after-treatment consisted of scrupulous cleanliness and light dustings with iodoform, covered with simple gauze. Complete healing, which was accelerated toward the end by slight stimulation with nitrate of silver, took place in twenty-four days. Thereafter the site of the neoplasms showed a small, pinkish atrophic cicatrix.

The health of the patient improved in a marked manner. She regained her strength and spirits and became five pounds heavier than before the operation, one pound less than her maximum weight at any time. On her return from the country in October, I began the use of hypodermatic injections of Fowler's solution, which it had been my wish to commence in July. For a period of two months she received these injections in doses commencing at seven and ending at ten drops. She had one abscess during this time. The injections, made with great antiseptic care, were administered on the thigh and on parts as near as admissible to the large mass of ganglia in the left groin. By the patient's preference the arsenic was then given by the mouth for a month, and as it by this method also produced annoying symptoms, it was discontinued. The result of

the three months' course of arsenic was the perceptible subsidence of the tumor, which became distinctly more movable and decidedly more lobulated on its superior surface. In December, 1887, the patient complained of coldness in the left heel; in June, 1888, her appetite began to fail. Then she had numbness in the leg and the corresponding arm, which was followed by slight loss of muscular power. This sensory and motor disturbance kept on apace. In April the right pupil became persistently enlarged, and there was right hemianæsthesia of the face. The left-sided paralysis and the right-sided disturbances continued, marasms supervened, and the patient died July 26, 1888, about thirteen months after the last operation, and three years from the date of invasion of the initial new growth. She was under the care of another physician in a distant city during the last six months of her life.

CASE II—*Göth*.—The woman, age not stated, first seen in February, 1882, had been healthy all her life, and never had borne children. For two years previous to date she had noticed the development of a tumor on the vulva which caused neither inconvenience nor pain. Göth found a rounded tumor of the size of the fist, of a bluish-black color, not sensitive to pressure, but with a tendency to bleed, and upon it several small ulcers dependent on the loss of epithelium. Close examination showed that the tumor was composed of a large upper and a smaller under flap, which fell together and appeared like a single tumor when the patient was in the horizontal position. The upper portion developed from the superior portion of the left labium minus, extended over the præputium clitoridis and down the right labium minus for a short space. Its length was 7 ctm., width 5 ctm., and thickness 2.5 ctm. The small lower flap seemed to spring from the lower portion of the left labium minus. The growth reached backward to the posterior border of the vulva and ended in a number of digitate processes. The tumors were traversed by numerous superficial fissures, giving the under surface an uneven and the outer a lobular appearance. The presence of the tumor compressed and pushed the urethra out of its axis, and obstructed the vaginal orifice. The lymphatic ganglia were not enlarged, and the patient seemed in fair condition. Under chloroform narcosis, the upper flap was drawn firmly upward and forward, transfixed with a sharp-pointed scalpel, and removed. The hæmorrhage, though profuse, was, with some effort, controlled. The lower flap was removed by a deep incision, extending well into the posterior vaginal wall. Care was taken to clip away all suspicious filaments. Under careful antiseptic measures, perfect healing resulted in four weeks. Göth emphasizes the facts of (a) the relatively benign course of the new growth; (b) the absence of infiltration of lymphatic ganglia; (c) the non-recurrence of the disease five months after ablation.

I may add that it is a great pity that the report of the case was not delayed until five years after the operation.

CASE III—*Terrillon*.—An hysterical woman, aged sixty-two years, was admitted to the hospital April 28, 1885, suffering from mental derangement and heni-æsthesia of the left side, and gave a confused history of moderate pain in the vulva, and of slight bloody discharge, both of recent date. Examination showed, on the right labium minus, a small tumor of the size of a large nut, firm, smooth on its surface, and absolutely black. It spread out by prolongations beyond its insertion, and was movable with the labium minus. Around the tumor the mucous membrane was of a uniform black color, studded with little patches of healthy tissue. This discoloration existed on the opposite labium, and was traced into the vagina as far as the os uteri. There was no tumor, however, except the one mentioned. There was no swelling in either groin, nor could any tumor be found on deep palpation in the iliac fossa.

The tumor gave rise to no pain, and it could be examined without discomfort to the patient. It was removed on June 28, 1885, by means of the galvano-cautery. The wound healed kindly by the 15th of July. Early in the following November the patient, who had become much emaciated, presented in the right groin (corresponding to the side of the ablated tumor) a distinct, uneven swelling of the ganglia. From this time on multiple tumors developed rapidly in various portions of the body. The woman's general condition became much worse. She walked with difficulty, lost her appetite, and presented every indication of a profoundly morbid state of the system. On the 17th of February, eight months after the operation, still more marked changes were observed. The discoloration had increased; the labia majora were swollen and œdematous; there were several small, prominent black nodules on the left labium minus, while the cicatrix of the operation was unaffected. The orifice of the urethra was invaded, and there was a blackish mass of the size of the little finger upon the posterior surface of the vagina. At this time the tumor in the right groin was of the size of the fist, uneven on its surface, and adherent to the deep tissues. The overlying skin was healthy, though somewhat thinned, and through it the ganglionic tumor presented a blackish color. In the left groin there were several small, hard, and isolated infiltrated ganglia. There was also a large indurated ganglion in the right subclavicular fossa, and a nut-sized black tumor upon the integument of the back. The patient's general condition continued to be very bad; emaciation was great; the face was swollen, and the abdomen and legs swollen and œdematous. She grew worse and died March 6th, suffering from violent dyspœna and severe abdominal pains. At the autopsy the inguinal, iliac, abdominal, and thoracic ganglia were found to be filled with a black substance, and some of them were of a pulpy consistence. The liver and spleen contained blackish nodules. Examination of the post-mortem specimens by Cornil showed generalized melanotic sarcoma.

CASE IV—*Müller*.—This case, which is entirely wanting in the details of age and clinical history, was taken from the private journal of Martin, of Berlin, after his death, by his assistant, Müller.

A tumor of the size of a goose-egg involving the clitoris was removed by operation. The woman was too weak to undergo a second operation on the enlarged inguinal ganglia. She died twelve days after the operation. At the autopsy, melanotic sarcomata were found in the brain, lungs, pericardium, liver, spleen, kidneys, retro-uterine fossa, bladder, round ligaments, stomach, jejunum, and thyreoid, tracheal, bronchial, suprarenal, mesenteric, and inguinal ganglia.

It is not certain that the disease began upon the clitoris. The principle of "better late than never" seems to have guided the operator in this case.

CASE V—*Hæckel*.—A woman, aged sixty-nine, well nourished and strong for her age, was first seen April 9, 1887. She had had six children and two miscarriages. Eleven months previous to examination she had noticed a small tumor on the external genitals which gradually grew larger. Five months later the left inguinal ganglia became swollen, and five months after that those of the right side became affected. Her only complaint was of a sense of fullness in the vagina. Hæckel found a tumor of the size of a child's fist, of a dark-blue color streaked with white, which was seated on the whole of the left labium minus, on the clitoris, and on the upper part of the right nymphæ, and resembled a horseshoe with unequal shanks. The bluish-black new formation, which contrasted strongly with the color of the surrounding tissue, jutted into the left labium minus and in a less degree into the right one. There was a small nodule at the orifice of the urethra and two others between the left la-

bium majus and minus. In the depth of the mons Veneris two hard cords were felt which were supposed to be the infiltrated crura of the clitoris. In the left groin there was a plum-sized mass of infiltrated ganglia and a smaller one on the right side. The left epitrochlear ganglion was enlarged. There were no abnormal pigmentations upon the body, and no pigmented naevi. An operation was performed by which all the vulvar mass and the fatty tissue of the mons Veneris and the infected ganglia were removed. The healing of the wound was rather slow. Ascites, icterus, œdema of the lower extremities, together with severe cachexia, developed, and the patient died five months after the operation.

CASE VI—*Bailly*.—A woman, aged seventy-two, of nervous temperament, had suffered from rheumatism prior to her sixtieth year, after which she was well. Ten months before examination she felt an indolent tumor of the size of a lentil in the thickness of the right labium minus near the clitoris. After remaining quiescent for rather less than a year, this tumor grew with great rapidity and became superficially ulcerated. Later on a tumor identical in structure and course appeared on the left labium minus externally and toward the fourchette, which obstructed the vaginal orifice. Patches of black pigmentation also were present on the vulva and in the vagina, which, owing to tenderness, was not accessible to examination. The tumor was ablated.

The history of this case was written a month after the operation, at which time the wound had not healed and there was no apparent ganglionic involvement; but the ominous statement is made that the patient presented a pinched and careworn look, that she was growing thinner day by day, and that she kept her bed.

CASE VII—*Fischer*.—A woman, aged fifty-six, was first seen April 22, 1870. Five months before, a small swelling appeared upon the left labium majus, which grew to the size of a walnut, ulcerated, and bled. The corresponding inguinal ganglia became enlarged simultaneously with the appearance of the new growth. The tumor was ablated and the patient discharged, healed, in four weeks. A few weeks later a recurrent growth appeared upon the labium. Six months after the operation the inguinal ganglia became ulcerated, and the patient became weak and died. It was thought that the irritation of a chronic leucorrhœa was a possible factor in causation.

Clinical History.—The mode of development of these melano-sarcomatous tumors of the vulva is essentially the same as that of their congeners of dermal origin. In their course, however, the former present certain peculiarities and modifications which are ingrafted upon them by the highly vascular nature of the mucous membrane, and by the anatomical conformation of the parts. A knowledge of the clinical history of cutaneous sarcomata is of much aid in this study.*

* In this connection it may be interesting to present the brief notes of cases of juxtapudendal melano-sarcomatous tumors which are scattered throughout medical literature, and have passed current as vulvar tumors.

A tumor, in all probability of melano-sarcomatous nature, was reported by J. Fergusson ("Recurrence of a Melanotic Tumor; Removal," "Lancet," 1851, vol. i, p. 622). A woman, aged forty-five, had a solid, movable tumor, of the size of an orange, in the right groin, extending from the iliac spine half way down Poupart's ligament. Two years previously she had a small pedunculated, bluish-black tumor on the right side of the mons Veneris. The skin over it ulcerated, and a fungous growth remained, which bled profusely. This was ablated and healing followed. The inguinal tumor (undoubtedly lymphatic in origin) was

Melano-sarcoma of the vulva begins as a minute red or purplish spot seated in the deeper portions of the mucous membrane. This spot soon becomes a papule and then a nodule, a good example of which is shown in the chromolithograph in the smaller oval lesion just within the margin of the right labium majus and above the tumor proper. This nodule on a flat surface is of round or oval shape, but in a cleft like that of the labial sulcus it may be of linear shape (as it was at the inception of the disease in my case). On an anfractuons surface (near urethra, vaginal orifice, and fourchette) the shape of the lesion would be indefinite. The nodule being, as we may say, the well-developed lesion of the morbid process, its subsequent progress is readily traced. If it enlarges in area it produces at first sessile tumors, but if, as in my case, the morbid growth is very exuberant in an outward direction, a true pedunculated tumor may be the result, as shown in the colored plate.

When a larger extent of surface is involved we find sessile tumors of various sizes, which may be as large as the fist or a goose-egg, as in Göth's and Müller's cases; or, not reaching this magnitude, they may merely jut up more or less from their bed, as they did in Terrillon's case. To the touch these tumors are firmer than sponge and less resistant than unvulcanized rubber; their density may be compared to that of a plum. Their surface may be smooth, or finely or coarsely lobulated. They appear to be composed of a homogeneous substance, and, in different shades of light, present black or blue tints, or a combination thereof. Though firmly adherent, motion or traction is readily produced. When very large, these tumors may become warty, or even fungous, upon their surface, and then from them exudes a bloody ichor (perhaps of offensive odor), and they may become more or less incrustated. Superficial ulceration from erosion may occur, and in this, as well as in the warty or fungating stage, hæmorrhage, mild or severe, may occur. Central softening of the tumors may also take place, and foul and destructive ulcers may result. We are unable to say whether in this form of melano-sarcoma spontaneous absorption takes place, as it sometimes does in kindred skin lesions. From the fact that the connective tissue is sparse on the vulvar sites of these tumors, it is not probable that we shall see anything analogous to the subcutaneous

secondary to that of the mons Veneris. No microscopic examination was made, but the tumor was pronounced melanotic.

Fischer (*op. cit.*) reports the following case: A woman had had since her thirty-fourth year a blackish growth on the perinæum. Prior to her fifty-fourth year, a tumor of the size of two fists, involving the left inguinal ganglia, appeared, which was extirpated. Eleven years after there was no recurrence.

Wagstaffe ("Pigmented Myxoma, Alveolated, removed from near the Labium Majus," "Trans. of the Path. Society of London," vol. xxiv, 1873, p. 167) reports the case of a woman, aged forty-two, having a conical tumor, of the size of a pigeon's egg, on the left labium majus, near the point of origin of the gracilis muscle, which began deeply in the connective tissue. It was pronounced to be of the type of myxomata and sarcomata.

It may be mentioned that melanotic growths of the uterus are very rare, and are usually of the form of melano-sarcoma. Neither melanocarcinoma nor melano-sarcoma has been found to originate primarily in the ovaries or vagina.

nodules of cutaneous melano-sarcoma. Ablation of these tumors may or may not be followed by perfect healing.

From our present knowledge it may be stated that the progress of these malignant growths is sometimes slow and again quite rapid, while it is decidedly exuberant. This being the case in old subjects, it will be interesting to watch the course of the disease in younger ones should they present themselves.

In Terrillon's case a diffuse black pigmentation of the whole vaginal membrane, without any other form of hyperplasia, is mentioned. This would seem to be analogous to the general bronzing of the skin which is sometimes seen in melano-sarcoma of the skin. It was also seen in Bailly's case.

The symptoms of melano-sarcoma of the vulva are decidedly mild. Early in their course they cause slight pruritus or smarting, and they may give rise to more or less hæmorrhage. Later on they cause inconvenience by reason of their size. If developed near the urethra, they may act as impediments to urination, and if near the vulva, they may be very objectionable mechanical obstacles. In the stage of degeneration of the tumors they may cause much suffering and worry.

Such are the uncertain mode and course of the generalization of melano-sarcoma, like those of all malignant growths, that it is impossible to give a description of it, since in no two cases is it similar. The dissemination of the disease in this form is through the lymphatics, which lead directly to the viscera; therefore it is in these organs that we should expect to see the gravamen of the secondary infections. In skin sarcomata the malignant dissemination is through the vessels and lymphatics, and by contiguous infection; therefore we so constantly see new crops of the disease upon the cutaneous envelope. It is probable that in melano-sarcoma of the female and male genitals the skin will not be involved so early and so frequently as the lymphatic system and the viscera. It is to be noted, however, that in Terrillon's case, in addition to great visceral infiltration, a melano-sarcoma nodule was found upon the back.

In my case it is probable that the metastatic malignant new growth was seated in the lower part of the pons. From the absence of symptoms it is probable that there was not metastasis to any other organ.

The date of the generalization or metastasis of melano-sarcoma of the vulva, like that of the whole family of sarcomata, is uncertain. In Terrillon's case it began in the groin, in about eleven months, and in my case the appearance of the morbid nervous phenomena, about thirty months after the onset of the disease, gives weight to the view that secondary changes began in the brain about that time. But it must be remembered that the ganglionic enlargement began between a year and eighteen months after the onset of the disease. Since death occurred in Haeckel's case five months after the operation, in Fischer's case in six months, and in Bailly's case in all probability in a few months, it is fair to assume either that marasmus set in or that metastatic growths were developed. The cases of Göth and Müller give us no information on this subject.

In my case and that of Terrillon the age at which the malignant growth began was sixty years, and, though Göth fails to state it, it is evident, from his description, that his patient was beyond the middle period of life. Haeckel's patient was sixty years old, Bailly's was seventy-two, and Fischer's was the youngest on record, being fifty-six. The statistics of other forms of sarcomata prove that they are more prone to appear late than early in life, but the foregoing figures would seem to indicate a more uniform evolution of melano-sarcoma of the vulva in late periods of life. Thus Kaposi, speaking of skin sarcomata, places the date of invasion between forty and sixty-eight; Tantarri, according to Perrin,* between forty-three and sixty; and De Amicis, between the thirty-ninth and seventy-fourth years of life. Exceptions to these averages are not common. Köbner's case was that of a girl nine years old; Billroth's patient was ten years, and Perrin's twenty-two years of age—all the growths were skin sarcomata. It is probable that further statistics will place the period of invasion of sarcomata of mucous membranes in middle and old age.

Microscopical Examination.—The anatomical diagnosis in my case is small-spindle-celled melanotic sarcoma. The mottled black and gray pigments of the tumor consist of clusters of closely aggregated, small, spindle-shaped cells, lying in a scanty stroma. The epithelial investment of the vulvar region was not present in any of the sections. Both the stroma and the tumor cells contained granules and larger and smaller masses of brownish pigment (see Fig. 2). In some places the sections are comparatively free of pigment. In other places hardly anything else but masses of pigment can be seen. The examination and microscopic drawing were made by Dr. Ira Van Gieson.

In Göth's case the anatomical diagnosis was melanotic alveolar sarcoma.

In the tumor in Terrillon's case the round cells of melano-sarcoma were found. Examination of the blood and urine showed the presence of minute blackish granules.

Microscopical examination of the tumor in Müller's, Haeckel's, and Bailly's cases showed melanotic sarcoma.

Ætiology.—There is nothing in the history of these cases which gives even a clue to the origin of this malignant new growth. From analogy with kindred skin lesions it may be inferred that any congenital lesion, particularly if pigmented, any structural defect of the parts, hereditary or acquired, or that irritation or traumatic causes, or simple hyperplasia, might serve as the starting point of it, but we have no positive knowledge.

Hildebrandt † speaks of the case of an old woman in which sarcoma of the vulva supervened upon the repeated cauterizations of some caruncles of the urethra with the actual cautery and acids. The lesson conveyed by it is that in old subjects these lesions should be excised rather than cauterized. Indeed, any irritated hyperplastic growth of the genitals of old women, or of those of middle age even, may take on a malignant nature; therefore they should be

* "De la sarcomatose cutanée," Paris, 1886.

† "Die Krankheiten der äusseren weiblichen Genitalien," Billroth's "Handbuch der Frauenkrankheiten," Stuttgart, 1877.

handled cautiously.* Leucorrhœa was looked upon as a possible causative factor in Fischer's case.

Taking an average of all the cases of sarcomata reported, it is found that they occur more frequently in males than in females.

Diagnosis.—So well marked are the features of melano-sarcoma of the vulva that their recognition is usually easy. A distinction may be necessary between it and melanotic carcinoma, which is prone to appear on cutaneous surfaces (the labia majora), or at their junction with mucous membranes; also on the skin of the extremities.

Melanotic carcinoma has the general appearance of epithelioma; is often accompanied by small or large pigment deposits, and the initial nodule is soon followed by new ones in its vicinity. In its course it is more rapid than pigmented sarcoma of these parts. In general, the carcinomatous growths tend to burrow rather deeply, while the sarcomatous luxuriate upward. Kaposi says that a moderate amount of swelling and diffuse infiltration of the surrounding tissues may occur early in the disease. It is important to remember that melano-sarcomatous tumors may later on become warty or fungous on their surface, and that this feature appears early in the course of melano-carcinoma. It is of vital importance that the diagnosis should be made at an early date in this, as in all forms of cancer, since upon it depends the future of the patient.

Prognosis.—It has been tritely remarked that the invasion of mucous membranes by sarcomatous growths is a sign of evil omen. This statement made regarding secondary deposits in cases of cutaneous and visceral sarcomata is particularly true concerning those of the primary invasion of mucous membranes. In these very vascular structures the morbid growth is exuberant and the disease seems to

* Cases of melano-carcinoma of the vulva are also rare, and are sometimes classed as sarcomas. The following have been reported:

Prescott Hewitt's case ("Melanosis of the Labium and Glands of the Groin," "Lancet," vol. i, 1861, p. 264) was that of a woman, aged fifty-nine, who observed a tumor on the anterior surface of the labium eight months before the operation. It was thought that it began upon a brown spot which had been there for years. The tumor grew rapidly, ulcerated, and bled freely. Though only palliative, the operation was radical, and included the removal of two or three black spots seated deeply in the wound. Two months later the disease reappeared *in situ*, and cerebral symptoms supervened, which led to the woman's death six months after the operation.

Klob ("Pathologische Anatomie der weiblichen Sexualorgane," 1864, p. 467, quoted by Haeckel) briefly mentions the case of an old woman who had a melano-carcinomatous nodule on the labium, and who died of a disseminated metastasis of the disease.

Müller (*op. cit.*, p. 447) reports the case of a nulliparous woman, aged thirty-three, who had a dark-blue, elastic, painless tumor, of walnut size, on the inner surface of the right labium majus, near the clitoris, which had grown rapidly within a few months. This tumor was quite well circumscribed, and became lost in the depth of the tissues, as far down as the pubic bone. It had not been preceded by a nævus-like growth. It was removed by deep incisions, the wound healing satisfactorily. Just after the operation the right inguinal ganglia became enlarged, but they afterward became normal. Three years after the operation the patient was well. Microscopic examination showed the tumor to be of a melano-carcinomatous nature.

In Kaposi's "Atlas der Syphilis" (Heft i, Taf. xii) will be found an excellent colored drawing of a melano-carcinoma of the external portion of the left labium majus.

take an especially firm hold upon them. Then, again, those portions* of mucous membranes upon which sarcomata, simple and pigmented, show a tendency to develop (the face and genitals), are in closely contiguous relation with large groups of lymphatic ganglia, which seem to be more readily infected than when the new growths are seated in the skin. In my case, and in that of Terrillon, death was induced in about two and three years, and in both the new growth reappeared within a few months after the removal of the initial tumor. Göth's case of freedom from the disease five months after the removal of the pigment sarcoma stands for nothing. It should have been reported five years after operation, rather than five months. The significant fact appears in Terrillon's report at the date of his operation, that the inguinal ganglia corresponding to the seat of the vulvar tumor were not perceptibly enlarged, and that, although the new growth did not reappear on that side, eight months later a ganglionic tumor, of the size of the fist, was found there.

And it may be added that in the literature of malignant new growths in general, the fact is not infrequently noted that a patient discharged cured after extirpation of the tumor returns later on, in months and even years, with infiltrated ganglia which, upon dismissal, had been thought to be unaffected. In no case, therefore, where the tumor is removed and no enlargement of the ganglia is found, are we warranted in assuming that the patient will not have a recurrence in them or elsewhere.

In cases where the tumor is young, small, readily removable, and without ganglionic implication, a guarded and moderately hopeful prognosis may be given. When the new growth is old, large, and firmly fixed, and particularly when accompanied with lymphatic complication, the outlook is gloomy. Early enlargement of the ganglia is a serious symptom, and the late development of this condition inevitably brings death in its train. The death of my patient and of Terrillon's, at the end of about two years, together with that of Haeckel's and Fischer's within a few months, emphasizes its lesson.

Upon the fact that the sarcomata are more prone to form metastases through the medium of the vascular system than the carcinomata, which, as a rule, form metastases through the lymph channels, the greater malignity of the former depends.

Treatment.—It may, I think, be stated as an axiom that all sarcomatous growths of the vulva, simple or melanotic,

* Mr. Jonathan Hutchinson—"Clinical Lectures and Reports of London Hospital" ("Cancer of Female Genitals"), London, 1865—speaking of epithelioma of the vulva, says: "The average length of life is scarcely longer than it is in the cases of medullary cancer of bones and testis, and it is very much shorter than what occurs in cancer of the breast. The explanation of the rapidity of progress is to be sought in the vascular condition of these parts, their rich endowment with lymphatics, and the early age of the patients attacked. We very often meet with cancer of the female genitals in patients under thirty, and I have observed it as early as twenty-four. In the young the processes of growth and absorption are much more rapid than in the old. Hence all varieties of cancerous action tend to be acute if occurring in comparatively young persons." Since melano-sarcoma of other parts has been observed in the young, it is possible that it may appear at earlier dates than it did in the six cases detailed in this essay.

being of such extreme malignancy, should be removed as quickly as possible. The sight and presence of these growths tend to demoralize the patient in mind and body; consequently, if there is a reasonable chance of subsequent healing, ablation should be performed. Though there is in all cases a probability of relapse *in situ*, and almost inevitably subsequent deposit in some part of the economy, the patient's comfort is greatly conserved by operation. My experience with these and other malignant forms of new growths of the vulva has convinced me that the best proceeding in general is to first remove the greater portion of the mass down near the skin level, and then to finish the operation by patient clipping and picking, by gentle gouging with the nails or with the handle of the scalpel, until all suspicious portions are removed. Such a course is far preferable to the destructive cauterization, chemical and thermic, which is recommended by some. When in these cases the lumen of the urethra or vagina is invaded, the task of the surgeon is much more difficult and tiresome than when the tumors are seated on the labia alone. For some cases the galvano-cautery is applicable, for others the knife is required. The hæmorrhage may be profuse, but it is readily controlled. Such is usually the woe-begone condition of these patients at the time of operation that the simultaneous removal of infiltrated ganglia is hardly warranted. The propriety of their subsequent removal must be left to the good sense and experience of the surgeon. If the ganglia are movable, and the mass is not too old, they may be removed. In my case, where the mass was as large as a goose-egg and firmly adherent to the fascia, an operation would have been simply foolhardy.

In these cases, where the outlook is uniformly so gloomy, all measures which offer a chance of future immunity should be tried. With the experience of Shattuck,* in his probable cure of a case of melano-sarcoma, and of Köbner,† in his case of seemingly positive cure of a child similarly affected, in my mind, I began, at the first available opportunity, the use of hypodermatic injections of arsenic. This agent certainly did soften the mass and caused its partial absorption. Earlier in the history of the case it might possibly have been curative. The logical conclusion, therefore, to be derived from our present knowledge of the effect of arsenic on the sarcomata is that it should be administered hypodermatically, in full and increasing doses, as early and for as long a period as possible.

Though the outlook is inevitably fatal, there is a modicum of satisfaction in the assurance we can give the patient that, when perfect removal of the vulvar mass is practicable, she may thereafter be free from this hideous reminder of her doom.

The University of Vienna.—According to the "Lancet," Dr. Anton has qualified as Docent in nervous and mental diseases, and Dr. v. Metnitz as Docent in odontology; Dr. v. Wagner and Dr. Lihotzky will during the summer session deliver the professorial lectures on mental diseases and midwifery respectively; Dr. Cermak is acting for Professor Fuchs, one of the ophthalmological professors, who is absent on sick leave.

* "Journal of the American Medical Association," July 4, 1885.

† "Berliner klin. Wochenschr.," No. 2, 1882.

THREE REMARKABLE CASES OF
COMPOUND DEPRESSED FRACTURE OF THE SKULL,
WITH HERNIA CEREBRI.
OPERATION; RECOVERY.

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THE subject of compound depressed fractures of the skull has recently been so thoroughly discussed in the various medical journals, and the proper methods of treatment have been so ably described, that but little remains for me to say on the subject. I will therefore briefly narrate the histories of three cases, each of which was followed by hernia cerebri, and all ending in recovery, which were recently under my care at the Manhattan General Hospital, in the hope that they will be of interest to the medical profession as still further showing the value of a thoroughly antiseptic treatment for wounds which were formerly almost uniformly fatal:

CASE I.—Charles E., aged six; residence, Edgewater, N. J.

On the morning of August 27, 1887, he was playing near one of his father's horses, when suddenly the animal gave the lad a vicious kick, striking him just above the left temple and back of the left eye. This happened at ten o'clock in the morning. The boy was carried into the house, bleeding profusely from what seemed a simple scalp wound.

He soon began to grow drowsy, and ultimately to lose consciousness, and finally he was put into a wagon and brought across the river and conducted to the Manhattan Hospital, where he was received, by the surgeon in charge, in a terribly exhausted condition, having continued to bleed from 10 A. M. to the time at which he was received, 5.30 P. M., an interval of seven hours and a half. The patient at that time was almost bloodless, with a pulse slow and very feeble; pupils equal and nearly normal, with a tendency toward dilatation; extremities cold; and complete unconsciousness.

A hasty examination revealed an extensive compound comminuted depressed fracture of the left side of the skull. There was complete paralysis of the left side of the face. The patient was immediately carried to the operating-room of the hospital and quickly got ready for an operation. Owing to his unconscious condition, I operated upon him without employing any anæsthetic.

There was a scalp wound, somewhat ragged in character, extending from the temporal ridge on the left parietal bone at about a quarter of an inch behind the point of meeting of the temporal ridge and the coronal suture, downward and slightly forward, a distance of two inches, to a point about midway between the upper and lower point of articulation between the anterior border of the squamous portion of the temporal bone and the greater wing of the sphenoid bone. Externally the wound passed from the side of the head at about the middle of, and about an inch and a half above, a line of the outer canthus of the eye to the external auditory meatus, downward and forward to a point half an inch beyond the outer angle of the left orbital cavity.

The scalp around the wound and to a distance of about two inches therefrom was shaven; the wound and scalp were then washed with soap and warm water, then irrigated with a 1-to-2,000 solution of mercuric bichloride, and other preliminary antiseptic precautions were taken. Then the wound in the scalp was enlarged by an incision about an inch and a half long, made at right angles with the original wound. The flaps thus

made being laid back, the depressed portion of bone came into view.

The fracture was comminuted, but the general shape was that of a crescent, as though the hoof of the horse had struck the head in such a manner as to cause a fracture following the lines of the iron shoe, and a continuation of the lines of fracture would have formed a complete horse-shoe-shaped figure. The

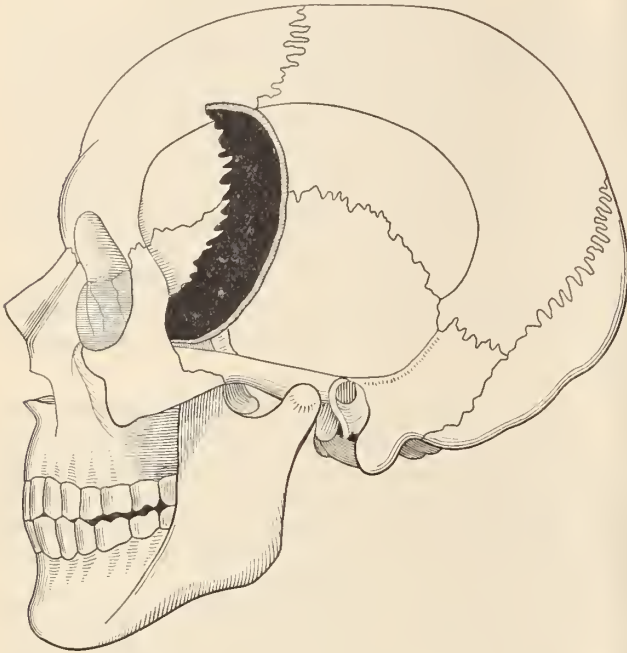


FIG. 1.

fracture extended from the point where the temporal ridge crossed the coronal suture, downward and forward, the convexity of the crescent being backward, to a point situated at the lower and anterior portion of the zygomatic fossa, behind the anterior part of the zygomatic process.

As it was unnecessary to trephine, the elevator was the only instrument needed. The depressed bone was imbedded at its anterior portion in the brain substance, and was partly concealed by it. The amount of depression varied from half to three quarters of an inch, the greatest amount of depression being near the lower part of the fracture. There were noticed three large pieces of bone and five or six small pieces. The large pieces were respectively parts of the temporal, parietal, and frontal bones, the force of the blow having not only caused the fracture, but also separated the bones at the temporo-parietal and coronal sutures. Attached to the inferior segment or temporal portion of fractured bone was found a small piece of the greater wing of the sphenoid bone about three quarters of an inch by one quarter wide.

The bones were raised by means of an elevator (the periosteum being lacerated and ground away by the blow) and extracted by means of a suitable forceps. When laid in their proper position with relation to each other, the bones formed the crescent-shaped figure before mentioned, the posterior or convex border of which was clean-cut and angular, the anterior border more irregular, and the apices rough and jagged. The bone itself was about three sixteenths of an inch thick at its thickest part, the inner table being very thin and of about one third the thickness of the outer table. This state of things was normal to the age of the patient. There were several cracks and fissures of the inner table which were absent in the outer. The whole amount of bone, when removed and placed in its normal anatomical relation, covered an area which was four

inches and a half long by an inch and a quarter wide in its widest part, this being about the center of the crescent. The middle meningeal artery, though exposed in the upper part of the space left by the removal of the parietal fragment, was intact.

After the removal of the bones, the dura mater was seen to be uninjured except at the lower part of the opening, somewhat below the point of junction of the parietal and temporal fragments of bone. At this situation both the dura mater and pia mater were ruptured, and there was a hernia cerebri of about the size of a nickel which projected through the rupture, and from whose somewhat lacerated surface blood and a small amount of brain substance were oozing. There was also a small clot of coagulated blood beneath the dura mater just adjacent to the point where the hernia protruded, but it was small and was not interfered with. The opening was then cleansed with mercuric-bichloride solution (1 to 2,000) and packed with iodoform gauze, the edges of the scalp wound were confined at their outer extremities by single catgut sutures, and a dressing of bichloride gauze and absorbent cotton was applied with a tight bandage.

During the operation there was considerable hæmorrhage, which caused some delay, but was finally checked by compression. At two different periods during the operation work had to be suspended and the patient resuscitated, as evidences of heart failure and respiratory paralysis were present. Subcutaneous injections of whisky and digitalis (20 minims to 1 drachm of whisky) were twice given, and artificial respiration was also resorted to. The duration of the operation proper was twenty minutes.

After the operation the patient was put to bed; hot-water bottles were placed around the feet and lower extremities. The pulse was very weak. The patient recovered partial consciousness about 7.30 P. M. Complete hemiplegia of the right side was then noticed. At 9 P. M. the pulse was much better. There were some pain and restlessness. He was given by the mouth, bromide of potassium, gr. x; chloral hydrate, gr. v. An ice-bag was applied to the head. He passed a fair night.

The next day, August 28th, the outside dressings were removed and, as there was nothing but very slight discoloration of the gauze, the iodoform packing was not removed from the wound, but only a clean outer dressing applied. The patient at this time was semi-conscious, seemingly comfortable; temperature normal; pulse, 74; respiration, 28. In the afternoon, temperature, 99.2°; pulse, 102; respiration, 28. At night, the patient was given the bromide and chloral mixture as on the previous evening. He passed a quiet night.

August 29th.—Head not touched. Morning temperature, 99.8°; conscious.

30th.—Outer dressings only changed. No hæmorrhage or discharge of any account. Paralysis persistent; temperature, 98.4°; pulse, 78; respiration, 18. Afternoon, temperature, 100°; pulse, 82; respiration, 20. The usual sedative at night; passed a fair night.

31st.—Morning, temperature, 99°; pulse, 74; respiration, 20. Afternoon, temperature, 100°; pulse, 80; respiration, 18.

September 1st.—Packing removed from wound; no pus in wound; the hernia had enlarged somewhat, but had not degenerated. Paralysis persistent and of the same extent. Morning, temperature, 99°; pulse, 72; respiration, 18. Afternoon, temperature, 100°; pulse, 84; respiration, 24.

The head was redressed every other day until September 10th without any untoward symptoms. The scalp wound was beginning to granulate well; the hernia was commencing to granulate and to diminish in size, the dura mater encroaching and closing in on it from all sides. There was felt at this time some fluctuation just above the left ear. An aspirating needle

was introduced but no pus met with. This fluctuating point gradually disappeared under pressure. About this time, also, there appeared a slight amount of movement in the right leg. Patient comfortable.

The temperature between September 1st and 9th varied between normal and 99.6°, averaging 99.1°. On September 9th, however, the temperature fell to just 97°, the pulse went down to 60, and the respirations to 16. The patient soon rallied, however, and the temperature came up to about 98°; pulse, 78; respiration, 22.

On September 10th the temperature was normal; the pulse averaged 82; the respiration, 19. The wound was dressed every other day up to September 19th with iodoform; once or twice, as occasion required, fused nitrate of silver was applied. The hernia was growing smaller; there was no suppuration of the brain substance. Peruvian balsam used to-day. The movement in the right leg was getting much freer; slight movement in right arm and forearm was noticed to-day for the first time; facial paralysis much improved; less dribbling of saliva; speaks very distinctly; tongue getting nearer the median line. The mental faculties, however, seem to be impaired, evidenced by his laughing immoderately and exaggerating his play, unlike other children in the ward.

The head was redressed every other day between September 19th and November 8th, the dressings being varied as occasion required. By this time no dressing was required; the hernia was covered over and the parts were looking well.

Fac-simile of the patient's handwriting before the injury, showing clear and legible cursive script.

FIG. 2.—Fac-simile of the patient's handwriting before the injury.

The mental condition was about the same. The right leg could be moved with ease in all directions; the right arm moved quite easily; there was also movement in the hand, but it was slight.

Fac-simile of the patient's handwriting after the injury, showing significantly impaired and illegible cursive script.

FIG. 3.—Fac-simile of the patient's handwriting after the injury.

November 8th.—The patient was dressed and sat in a chair. From this date on, the paralysis, both of leg and arm, rapidly improved, until by November 12th the patient was able to walk, assisted by a nurse, or by supporting part of his weight on the frames of the bed.

20th.—Patient could walk without aid, and even run a very

little, but could not move the right side with so much ease as the left side of the body.

The mental condition began to improve, and there were indications that the impairment would ultimately disappear. During the preceding eighteen days the temperature had averaged 98.6°; pulse, 85; respiration, 24.

28th.—The patient was taken home in a carriage. His parents were asked to report with him in a short while, but he did not appear until one day in December, 1888, over a year after his discharge. At that time there was still a little mental impairment, and, while able to move his limbs perfectly in walking, he exhibited a very slight halt of right foot, causing a very minute amount of lameness.

The scar is firm, and the patient feels well in every respect.

CASE II.—Antonio V., aged twenty-four, a native of Italy. This patient was brought to the Manhattan Hospital in an ambulance, on the afternoon of October 11th, from Shaft 27 of the new Croton aqueduct. While he was working at the bottom of the shaft a long piece of iron pipe, falling from the top of the shaft, struck his skull about half an inch to the right of the sagittal suture and a little behind the coronal suture, the pipe falling a hundred and forty feet, striking end first, and producing a compound comminuted fracture of the skull. The dura mater was lacerated and the brain substance protruded through the scalp wound to a height of three fourths of an inch. The fracture was of the right parietal bone. The patient was conscious when brought in, but drowsy and stupid. The wound was cleansed with mercuric-bichloride (1 to 2,000) solution and bichloride gauze applied. There was no operation performed on him that night.

On the next day, contrary to expectation, the patient was alive, but the stupor had increased. On removing the dressings, the protruding part of brain was found to have receded greatly. A finger was then passed into the wound, which was a clean-cut punched-out one, and a piece of bone was found to have been driven directly inward for a distance of half an inch. This depressed portion of bone was raised up from the brain, and, on

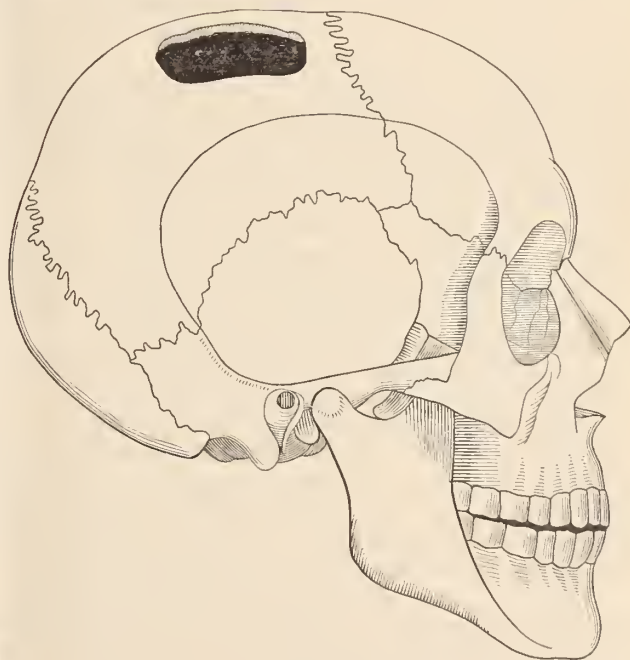


FIG. 4.

examination, was found to consist of two large fragments, making altogether a piece about an inch wide by two inches long. In addition, several small fragments of bone were removed.

There was some loss of brain substance caused by the sharp cutting edges of the fragments as they were driven in. The fracture of the skull seemed to be over an area having the ascending frontal and ascending parietal convolutions of the brain immediately beneath it. The symptoms manifested seemed to denote a lesion of the ascending frontal convolution of the brain. There was little hæmorrhage, however. The sharp edges of the skull around the hole were rounded off; the wound was cleansed with solution of mercuric bichloride and packed with iodoform gauze.

On the 13th of October the condition of the patient was unchanged, and, as the dressings were dry and no increase of temperature had appeared, they were allowed to remain until it was necessary to change them.

There was complete hemiplegia of the left side.

October 14th.—Patient lies in a stupid condition all the time, but when spoken to seems to be conscious.

15th.—To-day the dressings were removed and some clots and broken-down brain tissue washed away with an irrigator containing a 1-to-2,000 solution of mercuric bichloride. There was no foul odor from the wound. It was packed with iodoform gauze and a bandage applied as usual. The left eye is inflamed, and there is a yellow discharge from it. The general condition of the patient is unchanged.

18th.—Head redressed. Wound looked well, but the general condition of the patient seemed somewhat worse than previously.

20th.—Head redressed. Patient seemed much brighter to-day.

21st.—Patient looking in good condition to-day—perfectly conscious and pretty bright.

22d.—Dressing removed. Brain protrudes through the wound an inch or more. Wound irrigated and redressed.

24th.—Brain protrudes about an inch and a half and is slightly sloughy. Wound cleansed and dressed.

28th.—Condition about the same.

November 3d.—Patient has been improving slightly since last date; the protruding part of brain is granulating well. Temperature, 101°.

5th.—The temperature has remained at 101°. Over the anterior quarter of the hernia there is a slough, which is apparently superficial. At the lower part of the slough there is a small sinus, through which a probe can be passed a distance of at least half an inch, and probably farther, and from this opening there issues a serous or sero-purulent discharge.

10th.—The head has been dressed every day since the 5th inst. Serous fluid still escapes from the opening mentioned. The wound is granulating well around the edges.

12th.—To-day three skin grafts were applied to the surface of the hernia, and a vaseline dressing was applied.

14th.—Head redressed. The skin grafts look healthy and seem to have attached themselves to the brain tissue.

15th.—To-day two more skin grafts were applied.

20th.—Head redressed to-day. Only one out of the five skin grafts has taken root. The hernia has grown slightly larger since the last date, and presents a smooth, somewhat shiny appearance. It is almost perfectly elliptical in shape, and protrudes about an inch and a half above the level of the skull.

25th.—Last night the dressings were found to be soaked with a watery fluid, and on removing them the tumor was found to be considerably reduced in size. There is an opening in the upper and anterior part of the tumor into which a director can be passed downward and forward a distance of two or more inches without meeting with the least resistance. Through this opening an aqueous fluid escapes which is slightly turbid and of the specific gravity of 1.030. It contains an abundance

of chlorides and traces of albumin and sugar. From the same opening a probe was passed into a superficial sinus situated in the posterior portion of the tumor, and this cavity contained a brownish fluid. A bichloride-of-mercury compress was applied.

December 8th.—To-day an incision was made in the protruding part of the brain. A probe was passed in about two inches and cut down on. A drainage-tube was inserted and a dressing of bichloride gauze applied.

15th.—There has been no movement in either arm or leg so far until to-day, when a very slight amount of movement appeared in the leg and the faintest suspicion of movement in the arm.

21st.—To-day he can lift his knee from the bed and can move the arm slightly.

February 10th.—Patient has been improving steadily since the last record; the hernia has been gradually disappearing and the skin closing over, till at present the hernia has gone, and there is a slight depression covered by normal skin. The patient now has power enough in his leg to permit him to walk about the ward daily. The power in his arm has partially returned.

CASE III.—John W., aged nineteen, a salesman. This patient was brought from the thirty-fifth precinct, in the hospital ambulance, on Washington's birthday, February 22, 1889. He was struck by a locomotive near Woodlawn station, and, on his arrival at the hospital, was immediately carried to the operating-table. He was comatose. Examination disclosed a compound depressed fracture of the skull a little posterior to the parietal foramen on the left side, the fracture being a comminuted fract

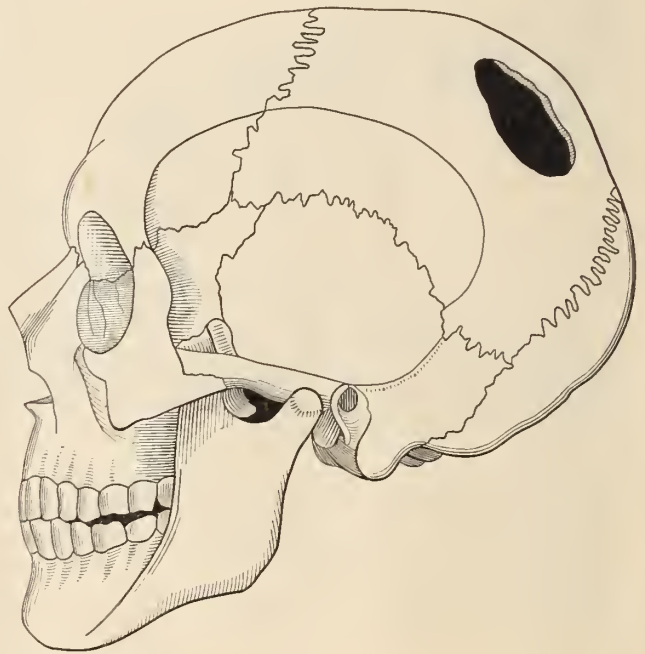


FIG. 5.

ure of the parietal bone. The dura mater was torn and fragments of the bone were driven into the brain substance for at least an inch. On account of the comatose condition of the patient, no anæsthetic was necessary. The several depressed fragments of bone were removed in the usual way, the use of the trephine being unnecessary. The wounded brain was cleansed, the dura mater laid over it as well as possible, the scalp wound sewed up except at the lower extremity, and the patient put to bed.

February 27th.—Since the accident the patient has remained comatose, with occasional intervals of delirium. He has retained a fair amount of nourishment. His urine has to be drawn with a catheter. The bowels are constipated and not

affected by enemata. This evening he had a slight rise of temperature, and the pulse was more frequent than before.

His neck is drawn backward and his muscles are very rigid.

March 2d.—The rigidity of his neck has slowly passed away. Two days ago he was given fifteen grains of calomel, with the result of free evacuation of the bowels. Yesterday he spoke rationally for the first time and recognized his friends. To-day his condition is the same as yesterday.

6th.—The patient is perfectly comfortable and conscious, also rational. The wound, which has been regularly attended to, looks well. There is a slight hernia cerebri. He suffers somewhat from vesical irritability, which has to be relieved. The urine is somewhat above normal in amount. Throughout the entire case there has been marked absence of paralysis of any kind.

8th.—Patient better to-day. The protruding part of the brain is suppurating freely and beginning to granulate. Wound dressed daily with wet creolin gauze.

14th.—A small abscess was to day noticed beneath the granulating surface of the brain. It was opened and a few drops of laudable pus were found. The cavity was packed with wet creolin gauze, and a large wet dressing applied over it.

17th.—The abscess cavity opened on the 14th has grown steadily larger. It is now three quarters of an inch in diameter and an inch and a half deep. It secretes a moderate amount of laudable pus. The floor and walls are formed of a soft white substance resembling the softened white matter of the brain. The cavity is packed daily with wet creolin gauze.

19th.—The walls and floor of the abscess cavity are granulating and discharging much less pus.

To-day the patient was seen and examined by Dr. Seguin. The lesion was said by him to correspond to one of the angular gyri of the brain. The examination showed that the muscular sense on the right side was somewhat impaired. The patient is now sitting up. The abscess cavity is all closed in.

26th.—The patient goes out in the air. He is practically cured. The wound in the scalp is barely noticeable.

them in town. Parents should be instructed to avoid and combat heat. During the hot part of the day the baby should be kept in the coolest part of the house; the clothing should be lessened in amount and water given regularly. In the early morning and late evening the streets are cooler than the house. The child should then be kept out in the air. Children may be taken to public squares, parks, along the water front, in open cars, and on ferry-boats. Strict regard must be paid to the food supply. Breast-fed children are by no means so likely to get the disease, and when they do, are much more readily cured. But many are artificially fed. A perfect substitute for mother's milk has not yet been found. It is now very generally conceded that cows' milk modified by the addition of certain substances is the *best* substitute, approaching *most* nearly to the natural supply. The wise physician is he who avoids prescribing the manufactured foods, save in rare instances. With a little care, children do very well upon a milk diet until the hot weather. A day or two of this and the trouble begins. The milk undergoes certain changes. It rapidly absorbs atmospheric impurities. If kept in an open vessel in an ice-box along with tainted meat or decaying vegetables, it will quickly acquire a peculiar taste and odor. Milk is very apt to become sour and undergo fermentation during the night. Many children are given milk which has become altered since the mother went to bed. The child is hungry and crying. The mother has no fresh supply, so the infant gets a dangerous food. Many diarrhœas start in this way which would never occur if pure, unchanged milk was given. If we hinder fermentation and prevent impurities getting into milk, we shall prevent much disease. To avoid contamination by surrounding air impurities, milk at the dairy should be placed in tightly sealed vessels, instead of being kept in cans as it commonly is. The bottled-milk idea is a step in the right direction. The purchase of milk in bottles from a reputable dairy-man should be advised. If we can hinder the fermentation of milk so that the infant will just as surely get a sweet, clean supply by night as by day, we can prevent many cases of diarrhœa. If the nursing could be put directly to the udder of the cow, an aseptic, unchanged supply would be insured. This is impracticable, both from the inaccessibility of the cow and also because of the advisability of modifying cows' milk by the addition of certain substances, that it may more nearly approach the human. Milk should be sent to its destination as quickly as possible. When received it should be sterilized in a water bath, after the method advised by Dr. Soxhlet and Dr. Caillé, or some modification thereof. Fermentation being thus prevented, the milk should be kept in bottles, tightly corked, in a cool place until wanted.

On the morning of June 26, 1888, I obtained a quart of milk from a reliable source. I performed the following experiments:

Six new two-ounce bottles were very thoroughly washed in hot water. Three bottles were filled with milk and placed in a water bath. In twenty minutes they were removed, quickly corked, and when cool placed in an ice-box. Twenty-four hours afterward one bottle was opened. The milk was found to be perfectly sweet. On the evening of the

THE PREVENTION OF SUMMER DIARRHŒA.

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THREE factors enter prominently into the aetiology of this disease—viz., heat, moisture, and improper food. Heat and moisture acting upon the food supply cause fermentation and rapid increase in bacterial development. The ingestion of this altered food is in many instances followed by dyspepsia and diarrhœa. A hot summer is always accompanied by a high mortality among infants living in large cities. This destruction of lives so valuable to the commonwealth may be mitigated by the instruction of parents:

1. As to the danger of heat and how to avoid it.
2. How they may prepare the food of the infant so that it will not do harm.
3. How to carry out the simpler rules of hygiene.

The heat it is very important to combat. Babies should be taken to the hill country or sea-shore as soon as the "heated term" commences. But, alas! few can leave their treadmill. It behooves us to do the very best we can for

same day, thirty-three hours having elapsed, another bottle was opened. Taste and smell could discover nothing amiss. On June 30th the third bottle was opened. The milk was tested by several persons and declared to be perfectly sweet and good. This after four days. The experiment represents what we wish to do: render innocuous any harmful element contained in milk, and keep it pure and unchanged. It demonstrates that milk may be kept wholesome for even a longer time than is necessary. The baby may have a proper food supply in hot weather and the food cause of diarrhœa be obviated.

The remaining three bottles were used as follows: One was filled with milk, placed in a water bath for twenty minutes, removed, and put on ice, *uncorked*. After twenty-four hours, the milk was slightly sour to the taste. This represents the common method of boiling milk to prevent souring. It is good as far as it goes, but is inefficient, because milk exposed to air absorbs new impurities and changes start up again. Another bottle was filled, corked, and put on ice without being exposed to the heat of the water bath. Twenty-four hours after, the milk was found sour to the taste. In this experiment the changes due to contained fermentative elements went on, although the milk was protected from the atmosphere. The sixth bottle was filled with milk and placed on ice, uncorked. Twenty-four hours afterward the milk was decidedly sour. In this the milk was neither sterilized nor protected. The result, the common one, was the worst possible. This plan for preventing milk changes I carried out among a considerable number of sick babies last summer. The sick with diarrhœa received great benefit by this method combined with anti-septic medication.

But it has seemed to me that often we might *prevent the disease* by a few minutes' instruction to the mother. The mother is directed to obtain two small soda-water bottles. They are strong and can be tightly corked. The rest of the apparatus will be found in every household. A saucepan is to be filled with water sufficient to reach to the neck of the bottle. The bottles are to be thoroughly washed, filled with milk, and placed in the saucepan, which is laid on the range. A cover excludes the air. In about twenty minutes, or as soon as the milk froths up, the bottles are to be tightly corked and laid in a cool place. Mothers readily understand this procedure and carry it out successfully. A few cents paid for bottles covers the cost of the apparatus. When the child is to be fed, one of the bottles is opened, and the amount required poured out. The bottle is to be corked and returned to a cool place. The second bottle is not to be opened until the contents of the first are exhausted. The infant's sanitary surroundings should be carefully inquired into. Mothers should be instructed to keep the child perfectly clean. Soiled linen should be immediately removed. The child should be frequently bathed and an abundance of fresh air and light afforded.

The Vermont State Medical Society.—The June meeting of this society was adjourned to July 9th and 10th, so as not to conflict with the Newport meeting of the American Medical Association. The place of meeting is Brattleboro'.

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THE INFLUENCE OF THE TESTICLES ON THE ORGANISM.

In a recent communication to the Paris *Société de biologie*, an abstract of which is given in the "Progrès médical" for June 8th, M. Brown-Séguard gave an account of certain odd experiments that he had undertaken in an endeavor to ascertain the effects produced upon the economy by the supposed action of the testicles on the blood circulating through them. It seems that he gave some attention to this question so long ago as in 1869. At that time he had concluded theoretically that the influence of the testicle was enormous. In 1875 he began experimenting by means of grafts containing testicular tissue; and, although all but one of these experiments failed, in that one an old and broken-down dog was endowed anew with the friskiness of comparative youth. More recently M. Brown-Séguard has pursued his inquiry by means of experiments on himself, employing subcutaneous injections of blood from the spermatic veins of a young animal, mixed with the juice obtained by crushing its testicles and with a little water. The distinguished author is by no means a young man—unless we are mistaken, he is verging on fourscore—but these injections seem to have rejuvenated him. He reports that his muscular strength has returned in great measure; that that torment of the aged, intestinal atony, has disappeared, so that defecation has become normal again; that the bladder has regained its contractility, as shown by an increase of force in the stream of urine; that he finds mental exertion very easy once more; and that there are other manifestations of his return to youthful vigor. The injections are said to be painful, and it is added that they are sometimes followed by redness of the skin, but that this is without serious consequences. It is not the seminal fluid to which M. Brown-Séguard attributes these wonderful results, but rather the venous blood that has passed through the testicles, for with semen, crude or filtered, he has been able to produce nothing but abscesses.

It is true that at the meeting some cold water was thrown on M. Brown-Séguard's new elixir of life; M. Dumontpallier remarked that the imagination probably played a certain part in such cases, and M. Féré suggested that a local inflammation of the lymphatic vessels, such as any subcutaneous injection might produce, was capable of giving rise to a subfebrile state that would have the effect noted. To this M. Brown-Séguard replied that it was precisely the punctures which had produced no local reaction that had been followed by the most decided dynamic effects, and that ordinary subcutaneous injections, such as those of morphine, gave rise to no gain of muscular power, notwithstanding the inflammatory nodules that they so commonly set up. Certainly, M. Brown-Séguard's inferences

need confirmation. If there should prove to be any truth in them, our views of the physiological importance of the testicle must be enlarged, and we may even be led to suppose that like properties reside in the ovary, and to question whether the "unsexing" of women is the only evil incurred by removal of the sexual glands.

THE OFFICE OF CORONER.

THE coroners of Hudson County, New Jersey, are said to have almost unanimously expressed their regret that they accepted their offices. They complain that they are overworked, that they are poorly paid, and that they have not even the satisfaction of getting promptly the insufficient payments that come to them.

Perhaps this dissatisfaction may be the entering-wedge leading to the abolition of that relic of barbarism, the coroner's position in that State. With regard to New York State, no serious indications have been noticed which give promise of any such happy result. We are all well enough aware of the faulty workings of the system, and yet indifference in the profession, in our societies, and in medico-legal circles, permits these faults to continue year after year. A case has been reported from a city in New York State which, briefly told, amounts to this: An irregular and uneducated practitioner was expecting to be brought into court on a charge of criminal abortion when he took his own life. The coroner was summoned and held an inquest. Under his manipulation the testimony was so guided or suppressed that the public records will forever show that this doubly guilty man died by "heart-disease," or some other similar convenient covering of facts that should not have been suppressed. When coroners of the class to which the individual in question happens to belong put upon the records a truthful statement of the cause of death in their inquest cases, it must be largely accidental and because there is no occult reason why their reports should be falsified. The time must come, we are persuaded, when this sham judicial officer will be laid upon the shelf, as has been done in Massachusetts. That commonwealth was the first to establish a State board of health, and many other States have followed her example. The same will occur, without doubt, in regard to the example set by her in establishing a system of medical examiners. This did away with the antiquated coroner and substituted in his place a medical man having skill and training. Under this system thirteen thousand cases of violent and suspicious deaths have been investigated in a satisfactory manner since 1877. At a meeting lately held in New York, Theodore H. Tyndale, Esq., of the Boston bar, gave his views of the salutary effects of the new system. He said: "With the abolition of the composite functionary and of the jury, we gained a highly trained class of medical examiners—an office gladly accepted by the best physicians of the State—and we have opened the door to fields of detailed investigation in pathology previously unknown. We have laid the foundation of a valuable collection of observed facts as shown by the publication of our medico-legal transactions contributed entirely by the medical

examiners. We have attained accuracy, and we have never, since the passage of the Act, failed in a single prosecution for want of or insufficient clearness of medical testimony."

MINOR PARAGRAPHS.

AN IRISH WOMAN, AN AUSTRALIAN GIRL, AND A CHIMPANZEE.

A PAPER written by D. J. Cunningham, M. D., professor of anatomy in the University of Dublin, recently communicated to the Royal Society, is entitled "The Spinal Curvature in an Aboriginal Australian." The object of the effort, which is mathematically severe and profoundly abstruse, is to demonstrate certain subtle points of similarity and difference assumed to exist in the antero-posterior curvature, in various regions of the spine, of the typical European, the aboriginal Australian, and the average chimpanzee. After apparently years of patient research in this important direction, and deploring the "absence of fresh spines of the lower races," the author finally succeeded in importing from Australia the intact spinal column, "packed with great skill and care," of an Australian girl aged sixteen. The other spines obtained for comparative analysis were those of an Irish woman aged thirty-five, and a young female chimpanzee. Careful examination of the sectional drawings illustrating the article leads the thoughtful and unbiased mind to conclude that this particular Irish woman and this particular Australian girl were as similar, so far as their spines were concerned, as could be expected, considering their respective ages and habits. The former had, it must be admitted, a by no means defective curve in the upper dorsal region, while the chimpanzee's spine bears just about such resemblance to the two others as the average man bears to the average monkey, which is saying a good deal: but, then, *cela va sans dire*. Speaking seriously, the progress of comparative anatomy may be impeded by lack of such data, but the author has been unfortunate in the selection of bases for his argument and deductions, and has neutralized the power of his equation by repeatedly admitting the use of imperfect factors. Surely *cacoethes scribendi* and chronic Darwinism are deplorable ailments.

A TROUBLESOME MEDICAL WOMAN.

ON many occasions we have spoken in commendation of medical women, but we trust that their well-wishers will not often be hampered by such incidents as one that recently happened in Paris. According to the "Progrès médical," one Mlle. D., a Russian *étudiante*, was appointed a hospital externe and attached to the *hôpital Saint-Antoine*, where the interne soon found it necessary to remonstrate with her upon the irregular quality of the services that she rendered. This he is said to have done with all proper moderation, but the young woman became insolent and procured the assistance of a fellow-student, a male Russian, who sought to fasten a quarrel upon the interne, at whom, indeed, one Russian student aimed a blow with a cane, which luckily was parried. The outcome of the affair was that Mademoiselle's appointment was revoked, and her champion had to answer to a charge of assault before a police magistrate.

THE EXCITING CAUSES OF HYSTERIA.

IN a recent work by Georges Guinon, "Les agents provocateurs de l'hystérie," which, the "Progrès médical" says, reflects equal honor upon its author and the Salpêtrière school, the following are given as the exciting causes of hysteria: Moral emotion; attempted hypnotism; nervous shock, as from

earthquakes, injuries, and peals of thunder; general infectious diseases, such as typhoid fever, pneumonia, scarlet fever, acute articular rheumatism, diabetes, malarial infection, and syphilis; morbid states characterized by considerable general exhaustion, such as hæmorrhages, mental or physical overwork, sexual excesses, anæmia, and chlorosis; poisoning, either in the chronic form, as with lead, alcohol, mercury, etc., or in the acute, particularly that produced by chloroform for surgical anæsthesia; and diseases of the nervous system, such as multiple sclerosis, locomotor ataxia, primary progressive myopathy, and gradual compression of the spinal cord in Pott's disease. The author does not ignore the fact that all these causes may produce other nervous troubles, notably neurasthenia, and recognizes as well the existence of a form of hysteria due to general malnutrition that includes a malnutrition of the nervous system.

THE PHYSICIANS OF JOHNSTOWN.

THE "Maryland Medical Journal" has received and distributed funds for the physicians of Johnstown who lost their all, Dr. J. W. Hamer being its almoner. Other journals may have done the same thing, but the Baltimore weekly is the first one that has fallen under our notice. There are physicians in the afflicted valley who before the floods were accounted well off, who now have not a penny except what comes to them as a gift or as payment for services. And some of them now complain that the visiting volunteers of the Red and Yellow Cross are taking professional business away from them, so that the earnings and the occupation—both of which would be helpful to them—go to those who need neither. They have made representations of these conditions to the State authorities, but their complaints were not entertained. If any funds collected by medical men or societies remain unforwarded, we suggest that the journal above named, or Dr. J. W. Hamer, be the channel for their distribution.

THE STAPHYLOCOCCUS PYOSEPTICUS.

THIS is the name that Héricourt and Richet have given to a micro-organism which they accidentally discovered in an epithelial, non-ulcerated swelling on a freshly killed dog. This coccus very closely resembles the *Staphylococcus pyogenes albus*, except in the following characteristics: In peptonized bouillon it forms whitish masses on the surface, which have a tendency to divide into delicate threads, while the *Staphylococcus albus* becomes distributed more evenly and does not form masses on the surface. It is also more virulent, one or two drops of the cultivation fluid having killed rabbits in from twelve to twenty-four hours. An equal quantity injected under the skin caused a large, gelatinous, transparent œdema, while the *Staphylococcus albus* injected in the same manner produces suppuration almost without œdema. They have also successfully undertaken to produce a protective inoculation in rabbits, not only by Pasteur's method, but also by injecting the blood of dogs into the peritoneal cavity. If the blood was taken from the carotids of dogs which had previously been inoculated with the *Staphylococcus pyosepticus* and had recovered, and injected into the peritoneal cavities of rabbits, these rabbits were proof against infection with this micro-organism. If the blood of uninfected dogs was employed, the rabbits presented an increased power of resistance to infection with the *Staphylococcus pyosepticus*, as was shown by the mildness of the local symptoms after inoculation. From this they think it possible that by the transfusion of the blood of animals which are proof against certain micro-organisms one may be able to confer immunity, or at least increased resisting power, upon other classes of animals.

FEVER IN FILTERS.

THE sixth annual report of Dr. C. V. Chapin, of Providence, deals with the outbreak of typhoid fever in the winter of 1888-'89. It contains an example of very painstaking work on the part of the health officials to discover the causation of the attack. Grave suspicions as to the pollution of the water-supply having arisen, the study was at first limited to the bacteriology of the Pawtuxet River water, but with negative results. The thought thereupon occurred to investigate the filters in use in houses where fever had existed. They were given to Dr. Prudden, of New York, and others skilled in bacteriological work. In three of these filters the typhoid organisms were found. Besides the typhoid bacilli, several organisms peculiar to fæces were associated with them. Dr. Prudden described the contents of one of the filters as a mixture of water, carbon, and human excrement. These three filters were not alike in their name and make. A diagnosis of the outbreak by exclusion gives a very strong presumption of river-water infection by typhoid excreta, and the laboratory investigations appear to give this view a significant confirmation. These inquiries also make it certain that the filters that are in ordinary use are sources of danger to the families using them, since they collect filth and micro-organisms from the water and serve as hatcheries to the latter.

CARE IN PRESCRIPTION-WRITING.

A DEATH by poisoning, arising in part from a want of care (so it is alleged) in the writing of a prescription, has occurred in France. A physician gave to his own brother, who was suffering from migraine, an order for a dose of antipyrine. So he intended, at least, but the prescription fell into the hands of the apothecary's female assistant, and she interpreted it as calling for atropine instead of antipyrine, and dispensed the fatal dose. Care should be exercised not only in the ordering of potent drugs, but also of those not so powerful, lest the writing be misinterpreted and a poison be dispensed where none was intended. Let the writing always be distinctly legible.

"THE SWIFT, THE SWALLOW, AND THE MARTIN."

DR. GEORGE BUCHANAN, a medical officer of the English Local Government Board, is often very happy in his way of putting things. Of this an instance has come to hand in his introduction to Dr. Klein's study of milk-scarlatina, wherein that writer contends that the disease in the cow is the same disease as the scarlet fever of man, and not cow-pox as is asserted by some; and that the *Streptococcus scarlatinae* of man can by inoculation beget a bovine scarlatina. Dr. Buchanan's point is that similarity is not identity in regard to the streptococci any more than it is as to the birds above the housetops. He says: "To the less educated judgment there is as little difference between one and another of the chain-forming micrococci as, to the eye of the ordinary dweller in towns, exists between the swift, the swallow, and the martin."

ITEMS, ETC.

The Association of Acting Assistant Surgeons of the United States Army held its first annual meeting at Newport, R. I., on Monday, June 24th. The following officers were elected for the ensuing year: President, Dr. A. Reeves Jackson; vice-presidents, Dr. J. L. Ord, Dr. A. J. Comfort, and Dr. D. S. Lamb; treasurer, Dr. R. J. Dunglison; registrar, Dr. Benjamin L. Holt; recorder, Dr. W. Thornton Parker; council, Dr. William Deeble, Dr. S. S. Turner, Dr. H. E. Sabin, Dr.

H. R. Porter, Dr. J. P. Pratt, Dr. H. E. Turner, Dr. S. B. Stone, Dr. John S. Warren, Dr. S. O. L. Potter, Dr. E. W. Thompson, and Dr. John T. Nagle. The association now numbers seventy-seven members. Applications for membership should be addressed to Dr. W. Thornton Parker, Narragansett Pier, R. 1.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 2, 1889:

DISEASES.	Week ending June 25.		Week ending July 2.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	7	0	11	3
Scarlet fever.....	81	8	71	7
Cerebro-spinal meningitis....	1	0	3	3
Measles.....	89	7	88	4
Diphtheria.....	115	35	99	27

Recent Deaths.—Dr. William N. Curtis, of East Albany, N. Y., died on June 6th, aged forty-five years. He was a native of London, England. He was graduated from the Albany Medical College in 1870.

Dr. Charles William Wolfertz, who died at West Orange, N. J., on June 19th, was one of the vaccinating corps of the Department of Health. He was an alumnus of the College of Physicians and Surgeons of the class of 1886. He was only twenty-five years old when his death, by pulmonary phthisis, took place.

Dr. Daniel W. Hand, of St. Paul, Minn., died on June 1st, of uræmia, in his fifty-fifth year. He was born at Cape May Court-House, N. J., August 18, 1834. He was educated in arts at Lewisburg, and in medicine at the University of Pennsylvania. From 1857 to the breaking out of the war Dr. Hand resided at St. Paul. His services as regimental surgeon, brigade surgeon, and medical director were meritorious and efficient. He was wounded at Fair Oaks. He was a prisoner at Libby prison for a short time. In August, 1864, he was at Newbern, being medical director of the State of North Carolina when yellow fever visited that city, carrying off over twelve hundred of the citizens and eleven of his assistant surgeons. He was attacked by the fever, but recovered quite promptly, although with a renal disease established which eventually ended his life. In 1865 he returned to St. Paul, and before many years stood in the front rank of the profession of his State. He was for many years the president of the State Board of Health.

Dr. William Elmer, an ex-president of the New Jersey State Medical Society, died at his home in Bridgeton on June 27th in his seventy-fifth year. He was a graduate of Princeton in 1832 and of the University of Pennsylvania in 1836, which latter institution has given not fewer than nine of the Elmer family to medicine. Dr. William Elmer had been a leader in Cumberland County not only in medicine, but in religious and charitable administration for half a century. He was the president of the State society in 1860, and was interested in the early movements by which the State board of health became a permanent institution. He occupied official positions in the State Lunatic Asylum, in the State Home for Feeble-minded Children, and in a number of organizations efficient for good in southern New Jersey.

Dr. Samuel Brandeis, of Louisville, died on May 24th, aged seventy years, of disease of the heart, from which he long had been a sufferer. He was a native of Prague, graduated at Vienna in 1846, and left his country for America a few years later. In 1852 he settled down for life at Louisville, where his eminent ability was soon marked by a large following. He was an industrious and scholarly practitioner, who found time to de-

velop a culture and refinement in extra-professional fields that are attained by few; educational progress interested him in a special manner. He held many places of honor and trust, both with his associates and with the general public.

The Superintendents of the Insane.—The following officers of the Association of Medical Superintendents of American Institutions for the Insane were elected at the recent meeting at Newport: President, Dr. W. W. Godding, of Washington, D. C.; vice-president, Dr. Henry P. Stearns, of Hartford, Conn.; secretary and treasurer, Dr. John Curwen, of Warren, Pa.

The Nova Scotia Medical Society.—The twenty-first meeting convened on July 3d at Halifax. Dr. Donald Campbell, of Halifax, is the president, and Dr. W. S. Muir secretary. The programme of scientific business presents over twenty titles of papers and reports as having been promised for the first two days. One of the members gives notice that he will raise the question of whether it is right that duty should be levied upon surgical instruments and medical works. A second question to be raised is the manner of the appointment of the Provincial Medical Board, whether by the Government or by the medical profession.

An International Congress of Otology and Laryngology has been invited to convene at Paris, for a six days' session, beginning on September 16th, the hall of the Trocadéro to be the place of meeting. The committee of organization is made up of very eminent specialists from all parts of France, with Dr. Duplay as president. The secretary, Dr. Loewenberg, may be addressed at rue Auber, 15, Paris.

The New York Cancer Hospital.—Dr. G. A. Kletsch has been appointed an assistant surgeon.

The Woman's Hospital.—Dr. G. A. Kletsch has been appointed an assistant surgeon.

The New York Polyclinic.—Dr. Henry C. Coe has been appointed a professor of gynecology, in place of the late Dr. Hunter.

The Transactions of the Medical Society of the State of New York.—The volume for 1889 of this annual publication gives an account of the eighty-third session at Albany, last February. Not only is this an unusually prompt appearance, but the book has a cleaner, brighter look than its predecessors. It was printed for the society by a Philadelphia printer. These improvements must have been undertaken with no little courage in view of the fact that the report of the treasurer shows an increasing deficit, amounting this year to over \$500.

The Tennessee Medical-Practice Act.—The new medical-practice act of Tennessee is thus summarized in the "Atlanta Medical and Surgical Journal" for June: There is a board of examiners, six in number, not more than four of whom are to be of the same school of practice. They are appointed by the Governor. No one may practice medicine without a certificate from this board, under penalty of \$100 for the first offense, and of \$200 afterward. All persons in practice at the time of the passage of the act are entitled to such certificate. Those thereafter desiring to begin practice must present a valid diploma or pass an examination. The examination fee is ten dollars, and the certificate fee is one dollar. Itinerants are to pay \$100 a month. The act does not apply to midwives. It has gone into effect, the "sixty days" limit having expired.

College Notes.—Fifty-seven degrees of M. D. were granted at the recent Harvard University commencement. The Uni-

versity of Michigan had eighty medical graduates. The Medical School of Maine had twenty.

Dr. Paul B. Barringer, formerly of Davidson College, N. C., has been elected to the chair of physiology and surgery at the University of Virginia, to take the place of Dr. James L. Cabell, who has resigned from active service. Dr. Barringer is the author of a brief history of the medical department.

Dr. John Whitridge Williams has been appointed chief of the obstetric clinic at the Johns Hopkins University. He will also assist Dr. Howard A. Kelly, the newly elected professor of obstetrics.

Dr. Christopher Johnston, Jr., of Baltimore, has resigned his lectureship on ophthalmology at the University of Maryland. He has been appointed to a fellowship in the Johns Hopkins University. He leaves medicine for philology, and his life-work will probably be given to that department which is designated as Assyriology.

Dr. George Ross has been appointed to the chair of the practice of medicine in McGill University, to be followed in the chair of clinical medicine by Dr. Richard L. MacDonnell.

The Transplantation of a Medical Fraud.—The attention of the New Jersey Board of Health and of the Medical Society of that State is called to the fact that there appears to be in Jersey City an alleged medical college which strongly suggests that miserable affair "The United States Medical College," formerly situated in New York. The "Tribune" of June 29th reports an alleged commencement of that college with twelve graduates and certain other forms of mimicry of a genuine institution of learning.

Journalistic Changes.—The "Weekly Medical Review," published in St. Louis, announces that it will be enlarged to the size of this journal. Another medical weekly is said to be on the ways at St. Louis. The two medical monthlies of Buffalo have coalesced under the title of the older one, the "Buffalo Medical and Surgical Journal." The junior journal, named the "Medical Press of Western New York," existed four years under the able editorial conduct of Dr. Roswell Park.

A Malpractice Suit.—Dr. Mansfield and Dr. Sheldon, of Wakefield, Mass., have been in the fiery furnace of a malpractice suit conducted against them by General B. F. Butler. They escaped with their lives, the jury deciding in their favor, but, as the "Boston Medical and Surgical Journal" intimates, the next worst thing to losing a suit of this nature is to win one; the annoyances and the losses of time, money, and peace of mind are not compensated for by the fact that the jury has happened to side with the defense.

The Honorary Degree of LL. D. has been conferred by Yale University on Dr. Horatio C. Wood, of Philadelphia.

Society Meetings for the Coming Week:

TUESDAY, *July 9th*: Vermont State Medical Society (first day—Brattleboro'); Medical Societies of the Counties of Chautauqua (annual), Clinton (semi-annual—Plattsburgh), Greene (quarterly), Jefferson (semi-annual—Watertown), Madison (annual), Oneida (annual—Utica), Ontario (annual—Canandaigua), Schuyler (semi-annual), Tioga (semi-annual—Owego), and Wayne (annual), N. Y.; Norfolk, Mass., District Medical Society (Hyde Park).

WEDNESDAY, *July 10th*: Vermont State Medical Society (second day); Tri-States Medical Association (Port Jervis, N. Y.); Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), and Worcester (Worcester), Mass., District Medical Societies.

THURSDAY, *July 11th*: Medical Society of the County of Fulton (semi-annual), N. Y.

SATURDAY, *July 13th*: Worcester, Mass., North District Medical Society.

Letters to the Editor.

SUBLUXATION OF THE HEAD OF THE RADIUS.

30 WEST FIFTY-NINTH STREET.

To the Editor of the New York Medical Journal:

SIR: In the interesting paper by Dr. Morris, published in your issue of the 22d instant, Dr. Van Arsdale is quoted as saying, as lately as last March, that the anatomical nature of the injury had not as yet been satisfactorily described; and this statement stimulated Dr. Morris's experiments on the cadaver. Both these gentlemen seem to have overlooked an essay on this subject by Dr. E. M. Moore, of Rochester, read before the New York State Medical Association at its annual meeting in 1886, and published in the third volume of its "Transactions," in which he described the lesion experimentally produced on the cadaver by him in terms almost identical with those used by Dr. Morris. Two specimens illustrating the condition in question were exhibited at the meeting above referred to. It is, of course, doubly satisfactory that the same results should be obtained from separate investigations independently conducted, but it is only fair that priority should be awarded to Dr. Moore for the solution of a much-vexed surgical problem.

In corroboration of Dr. Morris's suspicion that there are cases in which reduction is not effected either by art or by nature, I have had under my care a gentleman whose radius was subluxated two years previously by sudden extension in sliding a heavy weight from a cart on his Western "ranch." The medical man who saw him at the time failed to detect the character of the injury, and the pain caused by attempts at movement induced him to keep the elbow flexed at an angle of about 130°, until adhesions stiffened the joint and required considerable force to restore motion. The thickening about the radial articulation was so great that freedom of pronation and supination will never be practicable. In view of the rarity of this accident in an adult, the case is of interest, and it is noteworthy that its cause was similar to the force commonly applied by nurses to children—namely, sudden extension at the elbow with the wrist in a partly flexed position.

ALFRED L. CARROLL, M. D.

207 WEST FIFTY-SIXTH STREET, *June 25, 1889.*

To the Editor of the New York Medical Journal:

SIR: In an article by Dr. R. T. Morris, in last week's issue of your paper, the author, after referring to a paper read by me on so-called subluxation of the head of the radius, describes some experiments done and observations made with a view to determining the real anatomical lesion in these cases. As my paper may not come before all your readers, and as the author's article appears apt to give rise to misconceptions in regard to my views on the subject (especially as my conclusions are not given verbatim), I would state that, so far from being unacquainted with the chief conclusion of the author's (that the injury was due to interposition of the orbicular ligament between the head of the radius and the capitellum), my whole paper goes to prove that this is one of the three most probable theories admitted (the two others being injury to the radial head and partial anterior displacement, respectively).

The identical experiments illustrated by the author's cut

were done by Streubel in 1850, and others in Germany, and in this country by Van Santvoord and by E. M. Moore ("Trans. of the N. Y. State Med. Assoc.," 1886).

I myself, as late as March 11th of this year, demonstrated a specimen similar to that figured by the author to the Surgical Section of the Academy of Medicine (to which, however, the author has not done me the credit to refer) as illustrating an old and favorite theory, but one not above criticism.

The objections raised by me to this theory are: 1. That, although the interposition of the capsule of the joint is very easily observed on traction, when the skin and muscles have been dissected away, yet in the living subject the muscles and tissues surrounding the joint are so intimately connected with the ligaments that such interposition is improbable; and, if it did occur, muscular action would readily dislodge the interposed parts; and, again, if interposition of so much tissue took place, the fact could be easily made out by clinical observation. Nor does the snap heard clinically on reduction correspond to that produced in partially dissected cadavers.

2. The fact that such an acute observer as Streubel, eleven years after advancing the theory of interposition, was induced by clinical experience to discard it again argues against it.

3. The fact that in many clinical cases the head of the radius can be felt anteriorly displaced, speaks against the theory of interposition.

In a case of subluxation of the radius head shown by me at the May meeting of the Surgical Section of the Academy, the chairman asserted that he could feel this displacement of the head.

I believe that the theory of the author's, that relaxation of the biceps muscle is necessary to the successful production of the injury, is entirely original. But, in my opinion, when a child stumbles or falls while its hand is firmly held by the nurse, the biceps, so far from being taken unawares, is much more apt to produce a displacement of the radial head anteriorly, as was held by Goyrand and Lindemann. When a child stumbles in this way it does not relax its biceps, it is more apt to rupture it.

It is very easy to obtain conditions similar to those described by the author after the most diverse manipulations when partial dissections have been made; but whether they are so readily obtained in healthy children is a question upon which I am somewhat skeptical.

W. W. VAN ARSDALE, M. D.

Proceedings of Societies.

AMERICAN MEDICAL ASSOCIATION.

Fortieth Annual Meeting, held in Newport, R. I., Tuesday, Wednesday, Thursday, and Friday, June 25, 26, 27, and 28, 1889.

The President, Dr. W. W. DAWSON, of Cincinnati, in the Chair.

The Address of Welcome.—The proceedings of the first day were opened by an address of welcome by the Hon. Herbert W. Ladd, of Providence, Governor of Rhode Island. He spoke of the occasion as an exceptional one, for, as a rule, the visits of doctors were not associated with pleasure, and it was rarely that they could be greeted with a smile. Now, however, he hoped they would not only feel they were welcome, but would soon experience that cordiality for which Rhode Island was proverbial.

The President's Address.—After a few other interchanges

of complimentary formalities the president delivered the annual address. It was arranged to cover, by sectional headings, the entire position of American medicine. Prefacing this segregation of his subject, he referred to the future position of the learned professions. Such future, he said, was certainly most conspicuous and its obligations imperious. Medical men must be loyal to this grand destiny. Criticism abounded concerning the defects of medical education, but such criticisms came too frequently from gentlemen unacquainted with teaching, with no practical knowledge of the constitution of medical colleges or of the toil, devotion, and sacrifice made necessary by those engaged in didactic and clinical instruction. Education, it must be remembered, could not make all great or equal, but it tended at least to make all safe. In the crucible of private, practical life evolution asserted itself and the fittest survived. The position of the profession in the matter of medical teaching in this country was peculiar. For many years, and even now, with few exceptions, medical colleges were the creation of the members of the profession, most often of the faculties composing the schools, without endowment, without governmental aid, and depending for support upon the sacrifice of time and money on the part of the gentlemen occupying the chairs; and not only were the schools without patronage from the government, but society, from some unknown cause, had ever been against legitimate medicine, depending upon the scientific physician in time of trouble, but in the interim openly supporting all sorts of shams, frauds, and impostors. Elsewhere college work was provided for by the state, especially laboratory investigations. Hence it was not to be wondered at that in such departments this country might be somewhat behind the countries of Europe. While, however, they had been engaged there in elaborating experimental studies, the profession in America had developed the practical. Everywhere could be seen an earnest, burning desire for higher culture, for more exact and thorough knowledge. Especially was this true of the younger members of the profession. A movement was now on foot to concentrate those who possessed preliminary advantages and who could enter the profession with college educations. This was a move in the right direction, if it was not made too exclusive. Every effort which tended to refine the profession without emasculating it should meet with judicious approval. The answer to the question, "Whence are medical students to come and what facilities are now afforded or promised in the future for the education of the 'coming doctor?'" would, he trusted, give some comfort to the pessimist and soothe the restless and at times unreasonable critic. In the first place, the normal schools might be looked to for the supply of better material, year by year, from which medical students would be drafted. Then the most generous provisions were being made all over the land for institutions which would be worthy to be called universities. From these, graduates would emerge fit to rank by the side of those bearing the prized degrees from Oxford, Cambridge, Paris, Heidelberg, or Leipsic. The future was aglow with promise. Liberal donations and bequests were now being made by generous citizens to be used in developing higher culture. The poor in medicine, however much one might deplore him or train him, would, like the poor, be "always with us." As to the physical qualities of the "coming doctor," it was to the country schools, not the city bred, that medicine must look for many of her strong recruits. Cities would often emasculate, and young men were vitiated by indulgence and vice before they became possessed of serious thoughts. In many of the States of the Union already colleges were established in which the degrees of A. B. and A. M. might be obtained. Too strong insistence could not be made as to the necessity of a classical education. Without a knowledge of Latin and Greek

sure and distinguished success was uncertain. It was well not to be impatient. The influences were already projected which should give to the country students equal to the highest standard of preliminary preparation. Much had been done in a most primitive stage, and, he would ask, could more have been accomplished in a century?

Touching upon the subject of medical schools, the speaker referred again to the fact that in this country everything was endowed except medical colleges. All financial responsibilities had been assumed by the members of faculties, who gave every hour not devoted to "earning the guinea" to college work, and in most instances this was done without pecuniary reward. It was only recently that the wise, the generous, the favorites of fortune, and a few of the States had conceived the idea of endowing medical schools—institutions where medicine and surgery could be cultivated without the embarrassments of financial responsibility. In the metropolitan colleges every physician might feel just pride; their graduates, for the most part, would compare favorably with those educated anywhere on this earth. The accomplished Dr. Senn had said, after considerable experience with foreign schools, that the average American student learned more in one month than the average German student in three. Not because he had better teachers or better facilities, but because he made better use of his time. The provincial schools were also doing thorough work in training, and many supplemented their practical clinical studies by hospital attendance in the great cities and by post-graduate courses, and it was most gratifying to know the advantages offered by these organizations. Touching upon the subject of medical journalism, the president said: "Medical journals, metropolitan and provincial, are the heralds, the vanguards of medical progress, the exponents of professional culture. They are closely associated with the colleges in education and in post-graduate instruction. In them appear the best thoughts of the best men; they constitute the great forum of intellectual combat; upon their pages pretension is analyzed and estimated, and worth recognized; that which is new or original is indorsed, or rather encouraged." After passing in critical review the subjects of laboratory work, the history of medical teaching, the medical and surgical library and museum at Washington, the "Medical and Surgical History of the War of the Rebellion," and so on, the speaker went on to say that there were yet clouds. "What," he said, "has been accomplished by the profession in this country, self-reliant and, as heretofore stated, without governmental or social support, is certainly worthy of congratulation, and gives ground for hope of a rosy-hued future; but, alas! there are some dark clouds to be seen, some spots on the sun of promise. Have we inherent defects in our organic law—our *esprit de corps*? Upon the face of our promising future some omens of evil appear—indications which look not up but down, not forward but backward, not to the elevation but rather toward the degradation of our profession. Heretofore we have been an organization into which no species of fraud could enter; pretension, ignorant pretension, stopped at the door. No *ism* or *pathy* was admitted. Something more than a diploma, 'a legal diploma,' was required—a clean bill of conduct, free from false assumption, assumption of universal knowledge of specific remedies, of imaginary potencies; in fact, of all shams and false pretensions; a guild in which there was the greatest freedom for the truth, the largest liberty for the right. No vender of secret remedies was admitted, because of the ignorant presumption in which they were conceived and propagated. But, alas! that we should have fallen upon the evil times when 'patented processes' are attempted, when 'processes' applied to valuable remedies are kept secret. These remedies made with 'patent processes' are in daily use. This

is one of the dark spots in the picture. It came in with the 'legally qualified practitioner.' What are antipyrine, antifebrine, salol, sulphonal? The reliant patient may well propound such questions. Who can answer them?" He then went on to say that it might be asked if the standard of professional excellence had been raised by the laws enacted in many States for the regulation of the practice of medicine. These laws, while they banished those without diplomas, made quasi-respectable those who had so-called diplomas from whatever source. Had not such diplomas tended to make vice and presumptuous ignorance respectable?

The profession must be kept pure—pitch could not be touched without defilement—or it would degenerate and sink to the level of a trade. In the State boards of health, by the side of physicians were to be found these "legally qualified" practitioners. Where lay the responsibility? Self-examination on this subject should be searching. If there had been failure on the part of physicians as a whole in their duties to humanity, let them be swift to acknowledge and eager to correct the error. In conclusion, the speaker made an earnest and stirring appeal to the members of the profession, urging the necessity for a national organization to which all questions could be referred for just and final decision. But let them not lose their loyalty to this parent association. Of the American Medical Association let them unite in saying *Esto perpetua*.

This ended the business of the day, and during the afternoon and evening the members and ladies accompanying them availed themselves of various courtesies by the people of Newport and the vicinity.

The Proposed Rush Monument.—The reports of various committees having received attention early on Wednesday, Dr. WILLIAM PEPPER, of Philadelphia, delivered the address of the day, which was virtually an appeal to the sympathies of the association on behalf of the fund for the desired monument to the late Benjamin Rush. Rush, he said, had been a true social reformer, a denouncer of slavery, an opponent of the use of ardent spirits, though not insisting upon total abstinence. While Rush had been active in philanthropy, education, and religion, still he had been, above all else, a physician. Students had gone to Philadelphia from every State to avail themselves of his teachings. He had been among the earliest to advocate an advanced medical education.

The chairman of the Rush Monument Committee, Dr. ALBERT L. GIBON, of the Navy, then stated that but little progress had been made in the matter of the monument. The medical profession in this country was a hundred thousand strong, and if only forty thousand of these would contribute a dollar each a noble monument could be erected. Dr. Gibon's enthusiasm was so warm and his appeal so earnest that quite a furor was created. Business was suspended for the time being, and in a short while \$264 were subscribed toward the Rush Monument Fund.

The Report of the Committee on State Medicine.—Several important reports from section committees were handed in for the consideration of the third day's General Session. Among these was the following definite recommendation by the Committee on State Medicine:

"Your committee on uniform medical legislation have the honor to submit the following report, to wit:

"That, in our judgment, the best interests of the public will be subserved by the enactment of efficient medical legislation in every State of the Union.

"That, for the convenience of the profession of this country, it is advisable to secure uniformity of legislation in the essential features of all medical practice acts.

"This committee therefore begs to recommend as follows:

That in future medical legislation the essential features of the enactment be as follows: That all persons commencing the practice of medicine in any of its branches shall possess a license from the State Board of Medical Examiners, and that every candidate for a license shall submit satisfactory documentary evidence that he or she is a graduate in medicine of a medical institution in good standing with the said board and having a curriculum possessing at least the following requirements: First, an examination to test the student's fitness to become a practitioner. This examination shall include at least English grammar, composition, geography, history, arithmetic, algebra, physics, and the natural sciences, together with at least one of the following languages: Latin, French, or German; provided, however, that the graduates of regular colleges be exempted from said examination. Second, before receiving a degree of M. D. or M. B., candidates for the same shall have attended at least three full and regular courses of medicine of not less than six months each. All candidates for a license shall undergo examination by said board of medical examiners upon the branches usually taught in medical colleges. Said examination shall be both scientific and practical, and of sufficient severity to test the graduate's fitness to practice medicine and surgery. Said board of medical examiners shall issue a license to only such persons undergoing the examinations as may be deemed suitable to practice medicine. Said board may refuse to issue license for the following-named causes—to wit: Chronic and persistent inebriety, criminal abortion, or gross unprofessional conduct. All licenses shall be recorded and made a matter of public record with the county clerk or the clerk of the district court in the county wherein resides the interested person. Said board of medical examiners shall be appointed by the Governor for a period not to exceed five years, the members thereof to be chosen from among the reputable practitioners of the State of not less than five years' residence."

The report was accepted, as was also the following:

"Whereas, It is of the utmost importance that the people of this country should enjoy the same advantages from the advances in materia medica, chemistry, and pharmacy that are possessed by the people of Europe and other favored nations; and

"Whereas, The patent laws of the United States appear to be so construed as to protect the foreign manufacturers and purveyors of chemical products and to discriminate against domestic manufacturers by creating monopolies in the supply of certain new and valuable products; therefore be it

"Resolved, That the American Medical Association hereby most respectfully petitions the courts of the United States to instruct the proper committees to investigate the subject, to take testimony of any such discrimination, to compare the legislation on this subject of the leading governments of Europe and the practical working of our own laws upon copyright, trademark, and any other protection afforded to foreign manufacturers of drugs in frequent use or to be used in the treatment of the sick, and to report such action as it may deem desirable to correct any abuses or injustice to American citizens if they find such abuse or injustice to really exist."

The Statistics of Blindness.—The Section in Ophthalmology offered the following resolution, which also passed the General Session:

"Resolved, That the Ophthalmological Section respectfully desires the General Assembly to authorize this Ophthalmological Section to use what influence it can command to induce the census committee of the United States for 1890 to extend the tables relative to the blind and to tabulate to the greatest extent possible the causes of blindness."

The Address in Surgery.—The paper of the day was an ad-

dress on general surgery by Dr. P. S. CONNOR, of Cincinnati. Going over the beaten path in dealing with surgery as it was, the speaker brought his subject up to date. There had been as yet but a beginning in intrathoracic surgery, and so far but few sub-pleural tumors had been attacked, but there was reason to believe that ere long a decided advance would be made in handling forms of thoracic disease now considered as beyond the reach of surgical art. Passing, then, from a *résumé* of what had been accomplished in the surgery of the brain and the spinal cord, he went on to speak at some length on the subject of tuberculosis and cancer of the former. We had learned that it might attack any part of the blood circulation disturbed by general enfeeblement or by even slight injury. The bacilli might be destroyed or become encapsulated, and the softened tissues be taken up or shut in. Then, if the diseased foci were completely removed, as might often be done, the part might be as if it had never been so affected. As to whether diseased joints were best treated by arthrectomy or by typical incisions or by amputations, that matter was at present *sub judice*, but there was little doubt that further knowledge on the subject of tuberculous disease would also determine such surgical measures as would tend to the amelioration and cure of one of the most important and destructive of external diseases. As to cancer, the deductions from a series of carefully prepared statistics demonstrated the fact that one in fifty of the deaths in an aggregate city population of over five millions were due to some form of this disease. The affection was becoming more common throughout the civilized world—certainly so in this country and Great Britain. No more inviting field was open to the bacteriologists and experimenters than this one of cancer. So far as practical treatment was concerned, of nothing were we more certain than of the immense advantage of speedy removal, and, on the other hand, of the utter uselessness, so far at least as ultimate result was concerned, of any interference after wide extension had taken place. In nothing could the association do more than in determining, by collective investigation, all the available facts with reference to the disease, for it was only by combined scientific and practical work that conclusions could be reached as to the causes which excited the disease and the measures best adapted for its relief or cure.

The Auditing Committee reported that there had been paid into the treasury of the association during the year ending June 26th current the sum of \$33,798, and that there had been expended the sum of \$32,825, leaving an unexpended balance of \$973.

The meeting for the ensuing year, it was voted, was to be held at Nashville, Tenn., beginning on the third Tuesday in May.

The Association and the Railways.—A discussion then ensued, or rather a unanimous outburst of indignation against the railroads was expressed, about the persistent manner in which the reasonable title of the association to reduced passenger rates had been hitherto ignored. While base-ball clubs, theatrical troupes, and small picnics could always secure this accommodation, the association had ignominiously failed. Measures were adopted by which it was hoped the difficulty might be overcome and the railroads properly approached on the subject. From a disinterested standpoint it appeared that the difficulty arose from uncertain engineering, and that the broth had been spoiled by a superfluity of cooks.

Officers for the Ensuing Year.—The Committee on Nominations reported the following officers for the ensuing year:

President, Dr. E. M. Moore, of New York; first vice-president, Dr. J. W. Jackson, of Missouri; second vice-president, Dr. W. W. Kimball, of Minnesota; third vice-president, Dr. J. H. Warren, of Massachusetts; fourth vice-president, Dr. T. B.

Evans, of Maryland; treasurer, Dr. R. J. Duglison, of Pennsylvania; permanent secretary, Dr. W. B. Atkinson, of Pennsylvania; librarian, Dr. C. H. A. Kleinschmidt, of the District of Columbia. Dr. N. S. Davis, of Illinois, will deliver the address in general medicine; Dr. H. McGuire, of Virginia, the paper in surgery; and Dr. A. L. Carroll, of New York, the address in State medicine.

The Progress of Medicine in the Past Half-Century was the title of an address by Sir JAMES GRANT, M. D., of Ottawa, Canada, who was then introduced and invited to address the meeting. He said: Mr. President, Ladies and Gentlemen, I must offer you sincere thanks for the cordial invitation extended to me, not only to be present at your meeting, but to take a seat on this platform with the intelligent magi of the profession who are presiding over this great body. I am reminded of the fact that when the Marquis of Lorne was Governor of Canada the Royal Society was invited to luncheon at the Government House. When the health of the President of the United States was proposed—and I must tell you that there is no sentiment proposed in our country, next to that of Her Majesty, which is received with more warmth and genuine cordiality than that of your President—Mr. Mark Twain, who was present, was asked to respond. He thanked His Excellency for the compliment, but regretted that, being unprepared, he felt unequal to the demand. Now, gentlemen, I feel much in the same position upon being unexpectedly called to speak to this large assembly. For fully twenty-five years I have had the pleasure of attending at various times and places the meetings of your association, and it is to me a source of pride and gratification to note the evidences of progress everywhere observable in that profession to which I have the honor to belong.

As I was coming into this meeting I was told that certain gentlemen, pointed out to me, were the insane doctors. Further explanation, I am glad to say, dispelled this unpleasant suggestion, and I learned that they were merely members of the Section in Insanity who were in convention near by. While upon this subject, I may take the opportunity of drawing your attention to the fact that in no part of the domain of medicine has there been more valuable progress than in the treatment of the poor insane. Once these people were subjected to the most atrocious and barbarous usage, being treated, in fact, no better than quadrupeds. It is now, however, over forty years since the whole practice of restraint was thoroughly done away with, chiefly through the intervention of Gardner Hill, of the Lincoln Lunatic Asylum, whose name is intimately associated with this remarkable change for the better in dealing with the problem of the treatment of insanity. Now we find in the great institutions of this country for the care of this class of patients every indication that progressive development in the principles of the treatment of mental aberration is being carried into operation most successfully. The investigations by the late Dr. Gray, of Utica, whose name I mention with reverence and respect, are doubtless well known to you all. The subject of cerebral pathology attracted his closest attention, and his demonstrations by means of microscopical research did much to convey an accurate idea of cerebral structure under very diverse conditions. Strange to say, some of the most pronounced forms of insanity show no evidence of brain lesion or structural changes. Such also was the impression conveyed to me by Tuke, of Edinburgh. Under these circumstances is not the trite and laconic observation of "Punch" most apropos?—"What is matter? Never mind. What is mind? That's the matter."

Pursuing this subject further, the investigations of our physiologists within the past quarter of a century have certainly accomplished much as regards our knowledge of the nervous system. By processes of careful analytical induction such men as

Ferrier, of London, Hamilton and Seguin, of New York, and Hammond, of Washington, have been able to define the changes in, and locate the region of, disturbed centers. Disturbance of function caused by organic changes in localized centers of brain tissue become doubtless telegraphed to the periphery, and the resulting facial expression gave a clew to physiologists which, being followed up, has enabled surgeons such as Horsley, of London, Macewen, of Glasgow, and Weir, of New York, to explore the cranial cavity for the existence of cerebral tumors. You know well how these have been operated upon with marvelous success. I am gratified to see near me on this platform an ex-president of this association, Dr. Bowditch, of Boston, one of the original pioneers in the subject of tapping the chest in pleuritic effusion, and one who has worked so vigorously to convey his accurate impressions as regards the treatment of this important disease. Not alone have his observations been confined to the chest, but in the domain of preventive medicine he has also been a pioneer. It has been well said that "an ounce of prevention is better than a pound of cure," but the efforts of the medical profession in this direction prove its members to be a most disinterested class of philanthropists, who, by strenuously endeavoring to prevent the inroads of epidemic influences, thereby curtail their own means of food supply. The great public institutions—such as your churches, public halls, schools, asylums, and general buildings, your jails and hospitals—are now constructed with due appreciation of the most advanced principles of sanitation. Drainage and water supply are carefully scrutinized, and inspectors are appointed by the local authorities to see that structures in these particulars are according to legal requirement. Then, again, in the matter of food supply, investigations are equally extensive and interesting. That menstruum fluid which is so essentially the pabulum of the rising generation—milk—is known to be often the carrier of scarlet fever and diphtheria. So much is being accomplished by these investigations that I can see no tangible reason why the rising generation should not enjoy greater immunity from disease than their predecessors, who had to eke out existence without the grand principles of sanitation now enjoyed. Let me speak for a moment on the subject of what has been termed the great gymnasium of the system, the abdominal cavity, in which such remarkable surgical progress has been made. The name of Ephraim McDowell, of Kentucky, stands forth prominently associated with this progress, for he possessed the skill, the forethought, and the knowledge which enabled him to undertake the first ovariectomy. Following in his path came rapidly to the front Kimball, of Lowell, and Dunlop, of Ohio. In these three men America possesses an intellectual tripod of wonderful activity.

Their achievements are creditable to this country, and their operations are alike appreciated throughout the civilized world. Before me I see a gentleman whose name I can not refrain from mentioning—Dr. Senn, of Milwaukee, who has done so much with reference to lesions of the intestinal canal. While speaking thus eulogistically of my brethren on this side of the line, I feel confident that you reciprocate as to the influence in the same direction of thought which has been exercised by such men as Sir Spencer Wells, Thornton, Lawson Tait, and Keith, of Edinburgh. Almost every organ of the abdominal cavity has been operated on successfully, and such achievements mark, beyond a doubt, the progress of surgery during the past half-century. The exhibition in the adjoining hall gives evidence of the great advance which, within a few years, has been made in the materia medica in this country. This has been chiefly brought about through the instrumentality of the various pharmaceutical associations. The elixirs, the triturates, and the various materials, such as peptonoids, for assisting disturbed

digestive functions are certainly steps in the right direction. Medicinal substances are introduced into the system to combat the abnormal decay of tissue. Pain and suffering are relieved by the inhalation of toxic agents such as chloroform and ether, and we all know what has been done in this respect by our American brethren. Then again the heart's overaction is controlled by digitalis, and febrile exacerbations are reduced by reliable antipyretics. What a change, too, has come over the old *materia medica* of half a century ago! Not only are medicines administered to-day with greater accuracy and less empiricism, but nothing is now accepted or taken for granted in this field of inquiry. The why and the wherefore are scrutinized. The laboratories in pharmacology are institutions in Canada, one of which is presided over by Dr. Stewart, of McGill University, who, with Shoemaker, of Philadelphia, is actively engaged upon analytical research into the action of therapeutic agents and the processes by which practical remedial results are brought about. While traveling from Boston here yesterday I was reading an address delivered to the Law Society by the Hon. Chauncey M. Depew. From it I learned the remarkable fact that of the twenty-three presidents of the United States, eighteen had been members of the legal profession, and that during eighty-two years of the past century the presidential chair had been occupied by members of the legal fraternity. It seems to me, gentlemen, that the profession of medicine in the United States does not take a very deep or abiding interest in the affairs of state; otherwise more of its members would be represented and thus enabled to guard over our best interests. In the Commons of Canada there are at least fifteen or twenty medical men, irrespective of those in the Senate. In our British High Commission there is also an able medical man whose knowledge in this particular enabled him to direct the authorities with reference to the condition of cattle sent from Canada to England, saving to the Dominion a trade worth several millions annually. Through the members of the medical profession we have acquired a bill in the local legislature of Ontario for the establishment of medical education and registration. That council, with which I have been identified since its inception, over twenty years ago, appoints annually its own examiners irrespective of the teaching bodies. It exacts a high standard of preliminary education, and also a curriculum of medical study equal to those of the best British or American institutions. Through this portal our students must pass before they can be admitted to registration. Thus we guard the best interests of the profession in our country. I was pleased with the resolution from your association presented this morning embracing the idea of advance not only in the principles of preliminary education, but also as concerns the various branches of medical education. With the hundreds now teeming from the numerous universities, and the field of practice being overstocked, it is necessary that as high a standard of excellence as possible should be brought about. Around me to-day I find many of the junior members of our profession. For the benefit of these I would refer to an anecdote told of a young doctor hailing from away West. He was visiting the Parisian hospitals, and, meeting one of the leading professors, was interrogated as to where he came from. "Don't you know my preceptor, sir?" answered the Westerner, naming his State. "No, I do not," said the professor; "what has he written?" "Well, he has not written anything, sir, but he has a *very large practice* down there." Now, to our young men I would say, Keep your notebooks, report your facts, record your observations day by day. In this way you will in time not only be able to assist the medical journalism of the country, but to add to that literature of the profession which has so much enhanced the reputation of

this republic. Just reflect on the intellectual activity of such men as Gross, Dunglison, and Biggs; of Van Buren, Gurdon Buck, and Markoe; of Mott, Hamilton, Brainard, and Jewell; of White, of Buffalo, and Bigelow, of Boston, and then on the men who are leading the literature in diseases of women, such as Thomas and Emmet, Goodell and Storer, and other lights too numerous to mention, but whose names are household words with us in Canada. Are not these electric lights in their way radiating an influence for good of a most remarkable character? We on our side of the line, though separated by imaginary chains, feel that in our profession we are united. We are with you in all this achievement of progress and in appreciating the same influences which have prompted you to the accomplishment of so much good. I feel, gentlemen, that I can not better express what I mean than by referring to the message sent over the first completed cable between here and the old country by Queen Victoria: "What God hath joined together let no man put asunder." We are one people; we enjoy the same liberties, civil and religious; we speak the same language; we take our inspirations from the same fountains of science in all that pertains to the best interests of our profession. Therefore I think I can not do better than quote, in conclusion, the expressive lines by your gifted poet who now slumbers with the illustrious dead of this great republic:

Let us, then, be up and doing,
With a heart for any fate;
Still achieving, still pursuing,
Learn to labor and to wait.

The address was frequently interrupted by expressions of gratification by the meeting, and at its close the speaker was awarded round after round of applause.

In the evening a concert and a reception were given by the Newport profession at the Ocean House.

The Address in State Medicine.—The General Session met on Friday at 10 A. M. to listen to an address by Dr. WILLIAM H. WELCH, of Baltimore, on State medicine. Dr. Welch delivered what was really an exhaustive survey of the bacteriological deductions up to the present time. He concluded by warning his hearers to avoid the acceptance of exclusive dogmas or hypotheses as to the exact processes by which pernicious bacteriological agencies might make themselves actively infectious. It was not by sanitary prophylactic measures in one particular direction or another that we could hope to control the prevalence of disease, but by securing sanitary arrangements as far as possible perfect in every particular.

By resolution, the sympathy of the association was expressed for such members of the profession as had been sufferers by the Johnstown calamity, and their dues were ordered to be remitted for the year. Votes of thanks were then passed to all those who had in any way contributed to the well-being or enjoyment of the association in Newport. A special vote of thanks was proposed by Dr. Pancoast, of Pennsylvania, to Sir James Grant.

A deputation was instructed to introduce the new president, Dr. E. M. Moore, but urgent business had called him home.

The proceedings then formally closed.

In the afternoon there was an excursion upon Narragansett Bay.

NEW YORK ACADEMY OF MEDICINE.

Meeting of May 2, 1889.

The President, Dr. ALFRED L. LOOMIS, in the Chair.

Discussion on Phthisis Pulmonalis.—Dr. W. B. JAMES read a paper on "The Relation of the Tubercle Bacillus to its Etiology." He concluded that Koch's results had been com-

pletely confirmed by investigations made in the seven years since they had been published. The tubercle bacillus must be present in phthisis pulmonalis and as a focus in all the other tubercular inflammations, although the greatest variety of inflammations of other sorts (still further modified by differences in the various tissues composing the body) might arise secondarily. In the lung the essential factor was always the presence of the tubercle bacillus.

He would next consider the question whether the bacilli acted alone, or whether other factors were needed in conjunction, in order that, once inoculated, they might grow. It had been noticed that some individuals were affected by such an infection very differently from others, and also that the same person would not be affected in the same way at different times. A change of climate made at the beginning of a phthisical process often caused its suspension. If rabbits were inoculated with tubercular virus, and some of them were then confined in cellars and others ran free, the latter would more or less escape the disease, while the former died of it. Autopsies made on the bodies of those dying from various other causes in the New York Hospital had shown that in half of these bodies there were areas which had once been the seat of tubercular inflammation. Such observations furnished the best reply which could now be made to the question under consideration.

There was no doubt that bronchial catarrh and pleurisy favored the implantation of the virus in the lung. On the other hand, it was certain that in many cases pleurisy and bronchial catarrh were secondary to a tubercular focus so small or so hidden away (as in the bronchial glands) that it was unrecognizable during life, if no further development of the infection occurred. It had been shown that tubercular infection occurred more readily in parts whose vitality had been impaired by local injuries of any sort, but there was no doubt that the virus could be introduced and grow in perfectly sound tissue. The number of the germs introduced, and their malignancy or virility, also had much to do with the result in the body. The number and distribution of the lymphatics and their relation to the site of first infection might also determine in large measure whether the bacilli were conveyed to the bronchial glands or the lymph nodes, or were left to grow in the walls of the air vesicles. But, in conclusion, he would repeat that the only always-essential factor was the tubercle bacillus.

Dr. J. W. ROOSEVELT read a paper on "The Relation of the Tubercle Bacillus to the Early Diagnosis and Prognosis of Phthisis." The question resolved itself into this rather: What value was to be attached to the discovery of tubercle bacilli in the sputum of patients as a means of making an early diagnosis of phthisis? We were often confronted with a problem such as that in the following case: A young man is engaged in a business of such a nature that, in order to either advance or even hold his own, he must give it all his time and an unremitting attention. He works hard; after a time he runs down, and begins to lose sleep; he has little appetite, and coughs most of the time. He consults a physician as to whether or not he has the beginning stage of phthisis. If the answer is in the affirmative and a change of climate is advised, the young man's business is ruined, but his life is saved—in case the diagnosis is a correct one. A mistake in diagnosis might unnecessarily sacrifice either his business or his life. Now, the question arose at that point whether the presence or absence of bacilli in the sputum would be positive evidence in favor of or against the existence of phthisis. This question could be answered decidedly in the negative as regarded the latter half of the question. If no bacilli were found we could not say that the young man might not have phthisis. To establish that, not only must the sputum be found free of bacilli in many successive tests, but the exami-

nation of the chest, the family history, etc., must also give negative evidence. Often, in a phthisical patient, no deposit of tubercle was situated so as to have any direct or open connection with the air passages. These deposits might be extensive and yet no bacilli appear in the sputa. Again, the bronchial discharges might be so profuse that, like the needle in the haystack, the bacilli could not be found. In advising patients we must not wait to find the tubercle bacillus, or the opportunity of saving life might be neglected till it had passed by.

Phthisis was a complex disease in which several varying factors of causation were present, and in which the pathological results were numerous and much diversified. A common form in New York was one in which the only pathological elements were a deposit of tubercles which gave rise to some pleurisy and some bronchitis. In this form of the disease there was little tendency to the breaking down of pulmonary tissue, and no consolidation could be detected. Thus the physical signs were of no value, even when the disease was far advanced. In these same cases the detection of the tubercle bacillus was commonly impossible early in the disease, when such a discovery would be of most value. In such cases all the physical signs, the history of the patient's family, and careful observations on the course of his symptoms must be taken into account in arriving at a probable diagnosis.

As to the prognostic value of the presence or numbers of bacilli in the sputa, as related to the upward or downward course of the disease, it could be said with emphasis that there was no such value to be considered. On the contrary, it was a great and common mistake to regard the discharge of bacilli increasing, diminishing, ceasing, or absent as a test which would determine whether or not the patient was likely to recover. Manifestly the progress of the disease in the lung and other areas of tissue in the body, near or remote, could not be materially affected by the discharge or the retention of purulent matter containing a few of the many millions of bacteria. And yet the whole antiseptic treatment of the disease was based, apparently, on this idea, and had led to the dosing of these patients with active poisons. We often heard that, under such and such a form of treatment, by inhalations of germ-destroying vapors the "cough diminished, the temperature moderated, the night sweats became less frequent, and the number of bacilli in the sputa became diminished." In a completed history it usually needed to be added to this shortly that the patient presently died. As long as the complex body cell was easier to kill than the simply organized tubercle bacillus, it was idle to put antiseptic drugs into the body in the hope of killing the latter only. A much better and more reasonable plan was to feed the phagocytes. As yet, certainly, there was no specific bacillary poison known. His conclusion, then, was that the discovery of the bacilli was a matter having great positive but no negative value in arriving at a diagnosis, and little value in prognosis.

Dr. JAMES TYSON, of Philadelphia, present by invitation, spoke of the proofs afforded of the bacillary origin of phthisis. The conditions to be fulfilled were as follows: A vegetable organism must be found in the blood and tissues; it must be capable of being removed in a state of absolute purity from the blood and tissues, and, if reintroduced in a state of purity into the blood of an animal susceptible to the disease, must be afterward obtainable from its blood. All these conditions had been met, and the proofs substantiated by the modern culture method. Some interesting corollaries were deduced from this demonstration; thus we must consider it an inevitable conclusion that phthisis was contagious. At the same time every one would admit that it was but slightly so, and that the records furnished comparatively few cases of this sort. For the reason

of this we must look to the mode of action of the tubercle bacillus; it acted as an infecting agent when inhaled with minute particles of dried sputum, and carried in sufficient amount into tissues not capable of resisting it. Like typhoid, it was not easily contagious, because the germs must enter the mouth and pulmonary passages, just as it was necessary that the typhoidal virus should reach the intestines. The experiments of Couruet, who produced tuberculosis in susceptible animals by culture fluids derived from the sponge scrapings of the walls of rooms in which tuberculous patients had been confined and failed to produce it in other rooms where the walls had been scraped, had furnished positive evidence in this direction. A well-known factor determining the malignancy of the disease was the crowding of people in confined quarters; we had a fourfold mortality in prisons and a double mortality in manufactories, as compared with ordinary habitations. Flick, of Philadelphia, having had all the houses in a ward under observation for twenty-five years, had found that those in which tuberculosis occurred were usually (in 90 per cent.) not isolated from other houses, but adjoined houses in which tuberculosis had occurred; and that in 33 per cent. of the houses in which it did occur there was more than one case. A second corollary, founded on the same evidence, was that tuberculosis must be communicable by the taking of food containing its bacilli; and facts had long been accumulating to show that such was the case. Gurley had found that young animals fed on the milk of tuberculous cows developed tubercular affections often enough to show that here was a possible avenue of infection. Bang and others had demonstrated bacilli in the milk of cows having tubercular mammitis. In Cornil's report to the Paris congress he had shown that cultivations of the bacillus put into the lumen of the intestinal canal soon reached the glands of the mesentery. Still, it was a curious fact that there were few well-proved cases of harm sustained by human beings in this way. It was, however, well established that the swallowing of sputum by phthisical patients had often been followed shortly by the diarrhoea and emaciation of intestinal tuberculosis, which was perhaps always brought about in this way. Fowls that had eaten the expectoration of phthisical patients had been found to have tuberculosis of the intestines and liver.

As to the congenital or post-genital inheritance of phthisis, where the former occurred, it must be through the placenta that the actual germs reached a fetus whose tissues already furnished a soil favorable to their growth. The view that the ovum might take up bacilli at the time of its impregnation was purely speculative.

Dr. H. M. BIGGS remarked that there was little to be said in regard to the relation of the tubercle bacillus to phthisis, as there was so little doubt that this relation was a causative one. It seemed to him that we had absolute proof of the nature of this relation. Indeed, there was no fact in medicine, except, possibly, the relation of the anthrax bacillus to splenic fever, which was better proved. The profession could not too soon surrender the even now quite generally accepted views as to the causation of phthisis. The tubercle bacillus was the cause, and the only cause, of tuberculosis. This was the fact of prime importance and should be brought out in sharp relief.

Undoubtedly there were other factors that had some influence in the causation of the disease, but the only essential one was the introduction of the tubercle bacilli. A reduction in the tissue resistance, so that the dose of bacilli needed to start the process was diminished, he considered as the factor second in importance. A large enough dose of bacilli, however, would always and in any person produce the disease without the action of any other agencies.

Heredity in phthisis meant to him not the transfer from par-

ent to child of the actual bacilli, or even of a predisposition or special susceptibility to the disease, but the transmission of organs and tissues that had little resisting power, and easily succumbed when exposed to active noxious influences of any kind, one of which was the tubercle bacillus. A study of the principles of evolution had shown that in heredity there was really a remarkable tendency toward the transmission from parent to offspring, not of disease, but of the best in everything which could be given by the parent body. Only a negative condition—that is, the relative absence of strength—might necessarily be transmitted by feeble parents, even if the best possible was given.

The speaker concluded that the disease was distinctly a contagious and preventable one, and that it was a matter of the greatest moment for the coming generation that intelligent and decided action should be taken for the systematic destruction of the sputa of all phthisical patients, since by this means could be secured the restriction if not the eradication of the disease. We had as good reason for taking such measures as for stopping the spread of scarlet fever and small-pox by quarantine arrangements. It was impossible to speak too strongly on the subject. The sputa of tuberculous patients must be destroyed or safely disposed of, and tuberculous animals must be killed.

Both the profession and the laity needed to be educated into a knowledge and practical recognition of the fact that the germs in tubercular sputum could not multiply outside of the human or animal body, and that when the disease occurred it was due to direct transmission from some other human or animal body affected with it. The speaker closed with a strong plea in favor of a more general, full, and sharp recognition of the fact that the tubercle bacillus was the only cause of phthisis, from a strictly pathological point of view, and that the disease was chiefly produced by inhaling dried and pulverized tubercular sputum suspended in the air as dust.

Dr. H. P. LOOMIS asked whether there might not be a second primary factor in the causation of the disease—what might be called a pre-bacillary state of the constitution. How much this state consisted in lowered vitality, and how much in other unknown vices in the constitutional or vital make-up, we were not yet in a position to decide. We knew that a condition in which, clinically, the liability to phthisis was notable was sometimes hereditary, or, again, due to vices or habits of living, to alcohol, or to senile parentage. But we did not know why, of all those having such ancestry or vices, or who lived in adjacent dwellings under conditions equally bad, some contracted phthisis and died of it, and some did not contract it. The problem resembled that respecting the reason why mental strain produced insanity in a certain limited class, while in those not included in that class no tendency to the development of insanity appeared after mental strain, though the greatest variety of other mischiefs might be given rise to.

In regard to the number of those in whom phthisis came to an end without getting more than a foothold, as shown by autopsies after deaths from other causes, he would say that sixty per cent. of all bodies showed in some tissue the changes pointing to the presence there in the past of a tubercular inflammation.

Dr. E. L. TRUDEAU, of Saranac Lake, present by invitation, showed specimens illustrating the growth of tubercle bacilli in great numbers on sections of a potato, and the effects of the inoculation of the lungs of rabbits with tubercular virus after thirty-six days. Inoculations of the virus in animals had been found to produce the most different sorts of tubercular inflammation, according to the site of the injection of the virus, its amount, and the conditions of living to which the animal was afterward subjected. A large dose being put into the vein of

the ear of a rabbit, general tuberculosis of the liver, spleen, and joints, as well as the lungs, had at once followed. A very small dose being put into the apex of one lung and the creature being kept outdoors, a phthisis of a chronic sort followed, in which the fibrous elements greatly predominated, the other viscera escaping entirely.

Dr. W. H. THOMSON read a paper on the influence of the microbe theory on treatment, opening with a review of the different antiseptic methods of treating phthisis which had been tried and abandoned within recent years, and always because they failed to make any difference in the final outcome of the disease. Among the remedies spoken of in this connection were sodium benzoate, salicin, iodoform, tannin, and bichloride of mercury given internally; iodoform and allied drugs used as an injection for cold abscesses; sulphureted hydrogen enemata, inhalations of hydrochloric acid, and the use of creasote, tannin, and menthol. Experiments on animals, made in Germany, in which maximum doses of each of the eight best-recommended antiseptics had been given to animals already inoculated with tubercular virus, and without altering in any way the progress of the disease, warranted our dismissing all expectation of destroying the bacilli in living patients in this way. Even half a pint daily of a one-to-one-thousand solution of corrosive sublimate injected into the tissues of a tuberculous guinea-pig had failed to check the course of the disease. Experiments made to ascertain the effects of extreme altitudes on tuberculous animals had also yielded negative results. The speaker had never seen a case of small-pox, scarlet fever, or measles shortened in its course a single day by the use of an antiseptic or any other drug. An entirely similar question to him would be that of whether a field of potatoes could be so treated with a chemical agent that the weeds should be killed, but not the potatoes. He did not see how we could so change the common pabulum that the vegetable but not the weed, the body-cell but not the parasite, should thrive in it. Indeed, he had never hoped that we could kill the bacilli of disease safely.

It might be asked whether he had hopes of any practical result whatever arising from Koch's discoveries. He would answer that one such was already known. He referred to our knowledge of the apparent independence of successive bacterial growths of different sorts on each other. It was not often suggested by writers on these diseases that other bacteria than those called the specific ones took a part in the process. And yet it was, as a fact, a rare thing to find a single variety of bacteria acting alone. In the putrefaction of meat a series of thirteen different sorts of bacteria were required, one set appearing and carrying the process to a certain point, and there giving place to a new species, which carried it through the next successive stage. It had been found that the *Streptococcus pyogenes aureus* was the most widely active infecting agent known; in fact, it was somewhere present in most infectious diseases when suppuration occurred; thus in erysipelas, puerperal fever, diphtheria, suppurative synovitis occurring with endocarditis in scarlet fever or pneumonia, and also in typhoid fever when suppurative collections of matter formed. Might it not be thought probable that work done by this bacillus prepared the way, in many cases, for the growth of the tubercle bacillus? It was well known that the rapidity of the advance of phthisis bore a close relation to the amount of suppuration going on. Accordingly, it became an object of importance to prevent the initiation of a suppurative process, and to either remove or prevent the decomposition of pus formations. The caustic or corrosive action of pus on the living tissues was well known. In such cases creasote might be of real value by checking the suppurative process. In many cases in which he had employed it he had either greatly prolonged life or effected a cure. Most

of the success he had met with in the treatment of phthisis had been achieved by the use of creasote.

It was perhaps possible to bring about a limitation of the process by bringing up the resistance of the tissues to the point which obtained in the great majority of people, and an effort was always to be made most faithfully in this direction by every possible improvement in the patient's mode of life.

In conclusion, the speaker described two strongly contrasted types in the physiognomy of people who were born with a liability to phthisis on the one hand and chronic bronchitis on the other, and which appeared before the disease had begun in either case.

The inference to be drawn from this was that such constitutions should be recognized and their powers of resistance increased before the invasion of the bacilli had begun.

Dr. L. WALDSTEIN related two clinical histories which enforced Dr. Roosevelt's conclusions as to the aid in diagnosis and prognosis to be looked for from an examination of the sputa for bacilli.

Dr. B. F. WESTBROOK, of Brooklyn, thought that several of those preceding him who had emphasized the importance of the bacilli in the aetiology of the disease had overstated the case. He could not agree with Dr. Biggs in making the tubercle bacillus so conspicuous among the factors of the causation of phthisis. He believed that there were others more important. Causation in the organic world was a very complex matter, as had been pointed out by Aristotle two thousand years ago. While, according to present knowledge, the bacillus might be the only directly exciting cause by which phthisis was originated, it was far from being the only factor in that result. Moreover, it was one which could not well be excluded, while some of the others might be, if once thoroughly investigated. In regard to the matter of positive diagnosis by the discovery of bacilli in the sputa, he thought the facts had been somewhat overstated. He had never met with a case of ordinary phthisis in which bacilli were expectorated where a physical examination and the history of the case would not give the diagnosis independently. Still there were cases of pleurisy where suspicious râles were heard at the apex of the affected lung, and the question arose whether primary pulmonary phthisis or pleuritic tuberculosis was present. Here an examination of the sputa might exclude the latter disease if bacilli were found. Emphysema also sometimes gave a crackling at the apex of the lung not distinguishable from that of tuberculosis. Here, too, an examination of the sputa might be of value in diagnosis, both positively and negatively.

With regard to the value of the bacilli in prognosis, if he had a case of pulmonary disease presenting signs of consolidation and excavation, fœtid breath and copious expectoration, and if he found no bacilli in the sputa, he would conclude that the case was one of interstitial pneumonia and that the prognosis was good; if at any time bacilli and fever appeared, he would consider it a bad sign. He thought treatment based on the fact that a bacillus had been discovered had been pernicious on the whole. Antiseptics had their only value in the relief of fetid bronchitis, in cleansing cavities, and in clearing out the air passages. To fortify the constitution of the patient that he might withstand the disease was the essential thing.

Dr. F. P. KINNICUT agreed with the views expressed by Dr. Roosevelt and Dr. Thomson as to the real utility of the germicides. Their use, and it was a very distinct one, was to render the diseased surfaces aseptic, to aid in the removal of the secretions, and to prevent fermentation and catarrhal disorders in the alimentary canal. Some of them also had a stimulating effect on the nutritive process, and he thought that the value of creolin lay in this direction mainly. Controlling little details in the

daily life of the patient was the really efficient plan of treatment, as shown by the comparative number of the recoveries so obtained.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Meeting of April 22, 1889.

The President, DR. ALEXANDER S. HUNTER, in the Chair.

The Treatment of Acne without Arsenic, Sulphur, Ointments, or Lotions.—Dr. G. H. FOX read a short paper with this title. He did not object to the employment of these remedies, but he wished to make clear that their value was a very limited one, and did not entitle them to forming a routine treatment. A few cases of acne could be relieved by local measures alone, but, in the majority of cases, general treatment of the patient himself, and not of his skin alone, must be combined with these. In this general treatment, medicines might play an important part in certain cases, but it was still far from being generally recognized that diet, exercise, and other hygienic observances were of more account in getting lasting improvement in acne than all drugs put together.

In deciding on treatment it was convenient to recognize two forms or stages of the disease, the irritable and the indolent, as long recognized in the treatment of ulcers. The irritable form was largely reflex in origin, and due to disturbances of menstruation and of digestion. Here usually the skin of the face flushed easily, was fine and soft, and readily became inflamed under stimulating agencies. A watch-key used to press out comedones was apt to raise a red spot. Here all local treatment, except of the most soothing character, was contra-indicated, and constitutional treatment was mainly to be relied on. In the indolent form, vascular excitability was not present, and glandular obstruction was the prominent feature in the condition. The skin was apt to be coarse and doughy. Minute white nodules of sebaceous matter were constantly forming and being retained in the skin, with a termination in inflammation, papules, pustules, or abscesses where the constitution was strumous. Now, the indolent form of the disease demanded vigorous local treatment, and especially a thorough cleansing of the skin. This could not be accomplished by washing with soap, by lotions, or by ointments, but by mechanical evacuation of the engorged glands.

In the first of these two clinical forms of the disease, physicians had for years relied mainly upon arsenic for treatment, and often to the exclusion of other measures entirely. Of this practice he would remark that he believed that if arsenic should be banished from the globe the general practitioner would meet with better success than now in the treatment of acne and allied affections. Another drug which had been extensively used, and with better results than arsenic, was sulphide of calcium. It was often certainly of some value, in cases where there existed a pyogenic tendency, and small doses gave the best results always. But in most cases it was without effect; its virtues had been much overestimated, and its employment was apt to divert the attention of both physician and patient from more important measures.

The value of ergot had not been duly recognized. This drug was of some service in the indolent form of acne. By acting on the muscular fibers about the sebaceous glands and causing an evacuation of their contents, or else by lessening the caliber of the blood-vessels supplying the glands, it seemed to be of benefit in these cases. However, he knew that it was without effect in the hyperæmic form of acne. Here lotions were of some but only of slight value, in his experience. Too often they were the sole remedy used. After years of experimentation with the best prescriptions in this line which he had read of or could devise, he now seldom used a lotion at all. The line of treatment that

had, in his hands, been followed by the best results was neither new nor original, and consisted of two things, diet and local massage. Of these, diet was the more important, and he wished to lay stress on this, for, while all physicians would freely admit the value of regulating the diet, few enforced such regulation. In other words, but few recognized that to control the diet was to strike at the root of the matter. The irritable form of acne might be associated with disordered menstruation or other genito-urinary troubles in either sex, but most of the cases would be found due to bad digestion. Local massage could be applied by the fingers or by instruments adapted to the purpose. Its objects were to empty the glands and to cause the disappearance of inflamed lesions. It should leave the skin smoother, softer, and paler. It consisted in pinchings and firm rotary pressures with the finger tips. Its employment must be persisted in faithfully. A gentler and more agreeable way of emptying the glands was by a large circular curette such as the gynaecologists used. Its use had been approved by authorities both abroad and in America, yet was not general. It gave the best results with the least pain. The redness left soon disappeared. While the measures thus far mentioned were usually the only ones required, it remained for him to say, in conclusion, that no fixed plan of treatment would be found to suit all cases.

Psoriasis and its Treatment.—Dr. L. DUNCAN BULKLEY, in a paper devoted to this subject, embodied his clinical studies and analyses of two hundred and sixty-four cases of psoriasis which had been under his care in the past twenty years. Being so common and persistent a disease, it merited careful study. Its cause was almost unknown. It should not be confounded with eczema or scaly papular syphiloderma. It appeared mostly on the body, rarely on the palms or soles. He had never met with it on the tongue. It was less common among the poorer classes. It seemed to exist more in climates where the moisture was great and severe changes of temperature were common, but not in malarious regions. It was common in New York, Boston, Chicago, and Toronto; less so in Baltimore and St. Louis. It varied in different years. His statistics with respect to the ages at which it appeared agreed with those of standard writers. In 81 per cent. of his cases the disease had manifested itself before the thirty-first year, and in only 7 per cent. after the fortieth. Between the ages of ten and fifteen it appeared twice as often in females, but with double the frequency in males between the ages of fifteen and twenty-five. Few of his cases had come under his care at the beginning of the affection; on the contrary, it had usually existed for from five or ten up to forty and fifty years, and this was important, since the longer the duration the harder to effect a cure. Still, even where no cure was possible, the eruption could often be held in check for long periods of time. The disease had no tendency to self-limitation, but its severity could be greatly modified, often by medicines used persistently, by correct diet, baths and general hygiene, and by certain climatic influences of the nature of which little was known. Still there were some cases which remained intractable even under the best treatment. On the whole, psoriasis was one of the most rebellious of all the diseases appearing on the skin. Success in treatment depended on the age of the patient, the date of beginning treatment, and persistency in continuing it. The disease was most curable in children, very rebellious between the ages of twenty and twenty-five, but often curable in later years, especially if associated with gout or rheumatism, with which it had several points in common. Excessive meat-eating and the use of stimulants often precipitated an attack. Oils and fats in the diet, if digested, clothing adapted to prevent chilling of the surface (pure woolen next to the skin), and a warm and equable climate were important factors in treatment. As to internal medication, arsenic was one of the most

efficacious remedies. Alkalies were often of benefit, and were best given in the form of the acetate of potassium, lithium, or calcium. Iron and cod-liver oil were useful. Local applications used early might prevent in large measure the development of the eruption. The use of chrysophanic acid and chrysarobin he had abandoned. The white-precipitate ointment he had found more useful than any other application of this sort. Visits to mineral springs reputed to cure psoriasis led only to disappointment. He had had his patients try a large number of them. He did not know of a single cure effected by sulphur waters, though the reputation of such waters was the highest of any. The curable cases could be found only by trial, and that of the most patient and faithful sort.

Dr. R. W. TAYLOR opened the discussion of the two papers. The iconoclastic spirit of the first he thought justifiable, and, as it led at the same time to a building up with better material than it destroyed, commendable. For the purposes of discussion, its distinction between an irritable and an indolent form of acne was clever and convenient. The author's want of faith in the efficacy of arsenic was well founded in the main, though it must be said that arsenic did good in some cases. The disease showed itself under so many different forms, in so many different skins, and from such varying causes, that it was hard to generalize in a short paper as to proper treatment. Not enough attention had been given to a possible microbial origin for some forms of acne. Where that could be proved, it would be irrational to treat follicles containing pus resulting from an infection from without by an internal remedy, such as sulphide of calcium, which was supposed to act as an absorbent or disorganizer of pus. Ergot sometimes did good and again did not, or else disordered the health of the patient. The curette and massage (any one of a number of different sorts would answer) were the reliable remedial agents. Pressure in itself acted beneficially. Tabs due to cell exudation and without much epithelial growth could be made to disappear by pressure, and just so acne pimples. The curette was good in itself, and also prepared the way for other agents. Lotions, ointments, and powders should not meet with wholesale condemnation.

In regard to Dr. Bulkley's paper, it was difficult to criticize it; it followed the traditional lines of the text-books and dealt with statistics largely, any inferences drawn from which he regarded as highly untrustworthy. The most important point related to the curability of the disease, and that this was greater the earlier it was attempted he had himself taught for years. He had never been able to decide that there was a diathesis behind psoriasis. There were no proofs of its having a connection with rheumatism, or of its being due to dram-drinking, etc. The most we could say was that the disease represented a bad habit in the skin, and that, the latter being very closely connected with the functions of the body and exposed to weather, clothing, etc., great variety in the course and severity of the disease resulted. Its heredity was admitted by leading dermatologists; it commonly appeared in the children with a certainty proportionate to its intensity in the parents.

Dr. H. G. PIFFARD said he could agree with Dr. Fox in his generalizations, but not in regard to particulars. Thus, Dr. Fox made acne due to gastric rather than genital troubles, and he (the speaker) believed just the reverse was true. He believed it a disease which might be either of internal or of parasitic or bacterial origin. He did not think we knew anything as to the mode of action of ergot, but he had observed that the severer the case the more likely was ergot to act favorably. By regulating conditions in the uterus it might stop a reflex irritation beginning there. He had used sulphide of calcium, but in as large doses as the stomach would bear—a fourth or a half of a grain. He used it in the indolent form of the disease, and gave

it till the skin was enlivened and the lesion took on an active state, aiding in this result by gymnastics, scrubbing, etc. Evacuation of the pustules it was always well to accomplish, but he had found that the wound made by a slender lancet healed more quickly than that following the use of a curette.

The genital origin of the disease he had seen illustrated in many of his cases. As Denslow had pointed out, urethral irritation from a stricture near the meatus or phimosis frequently gave rise to acne in young males; he always made an examination of the genitals in males, and especially looked for evidences of gonorrhœa or masturbation.

With regard to Dr. Bulkley's treatment in psoriasis, he was surprised to hear that he had abandoned the use of chrysarobin. In his experience it had caused the eruption to disappear more quickly than any other topical agent. Its use involved some pain and staining of the clothes, but was justified by the result gained. Arsenic he used in full doses for long periods.

Dr. C. W. ALLEN had often seen decided benefit from the use of sulphide of calcium in acne, given in doses as small as the twentieth of a grain every two hours or oftener. He had noticed that ergot more commonly relieved acne in women than in men. He believed it useless to treat an acne due to uterine disorder otherwise than by attention to the latter trouble. In men he had applied ergot externally, the fluid extract or a combination with collodion, and with apparent good effect. As one papule helped to induce others, it was important to keep them empty from the first, if possible. He thought highly of the external mechanical treatment of acne. He preferred the comedo extractor of Auspitz as modified by Dr. Piffard to any form of puncturing. The entrance of micro-organisms into the acne pustule was probably the cause of the diffused induration so often appearing, in time, and this infection spread, if left alone, to other papules. This would indicate the necessity of an early evacuation of the obstructed glands, and the value of antiparasitics used externally.

As to psoriasis, he believed it hereditary. He had found no reason for abandoning either anthrarobin, pyrogallol, or chrysarobin, but used more of the latter. If mixed with collodion or liquid gutta-percha, its disagreeable effects could be avoided, and in combination with salicylic acid it was especially beneficial, as the skin was softened at the same time that the infiltrated parts were acted on.

Dr. E. B. BRONSON, speaking of the causes and treatment of acne, laid great stress on the important relations of sexual disturbances in the ætiology of the disease. He had found sexual hygiene, a thing commonly best secured by wedlock, of the utmost value in improving the complexions of these patients. He considered acne as a developmental disease. As the beard began to grow, an erethism in the sebaceous glands was developed not unlike the increased activity in the hair bulbs, both glands and hair follicles seeming to have an intimate connection with the sexual system. With digestive disturbances he had found rosacea more commonly developed. As to removing comedones, there were many cases in which it was better to leave them untouched, if they were at all hard to extract, until their removal became easy, lest an increased inflammation be set up. Sulphur he considered an important remedy in the right cases; the amount of suppuration determined the good to be obtained from its use (as a germicide). In acne indurata, operative treatment was that most needed. It was not always recognized that any acne tubercle which blanched on pressure contained gummy or cheesy matter, a surprising amount of which could often be scooped out.

In psoriasis he had found chrysarobin to be of much more value than the mercurial ointments or tar of the old-time treatment. Anthrarobin came next, and was sometimes of equal

value. It did not inflame the skin, and so was indicated in cases complicated by eczema, or in which for any reason chrysoarobin could not be borne.

Dr. SHERWELL, of Brooklyn, agreed with Dr. Bronson that acne was a developmental disease, and almost entirely of internal causation. Especially close was the ætiological connection of troubles situated somewhere in the pelvis, constipation, and uterine or any other genito-urinary disorders. Where urethral engorgement or stricture had been found, he and others had repeatedly cured acne by the passage of cold sounds. With regard to psoriasis, he regarded it as arising commonly, in some way, from non-oxidation in the tissue changes—what might be called sootiness in the flues; also from rheumatism and uncleanness of living, the disturbance due to which acted on a limited pathological area. He agreed with Dr. Bronson as to the value and employment of chrysoarobin and anthrarobin.

Dr. WILLIAM H. THOMSON, speaking from the standpoint of a general practitioner, said that for many years he had been accustomed, when consulted for the relief of acne, to examine the genitals in both sexes. He also looked into the state of the digestive apparatus. It was very essential to remember that troubles in this region were commonly associated with and often due to genital disorders. But for the more immediate causation of acne, he now looked to a self-infection by alkaloidal substances arising from intestinal fermentation. There was no one cause for acne. Fermentation of food was in his opinion as active a one as genito-urinary trouble. Acne often occurred in chlorosis and in affections of the liver or pancreas. He had cured acne in several instances recently by giving benzoate of sodium, naphthol, and salol in combination. In psoriasis he got the best results from liquor potassæ in large doses, together with cinchona. He believed the disease hereditary, having repeatedly seen it appearing in three successive generations. He had been surprised at hearing different speakers call attention to an infection by microbes as one factor in the ætiology of acne pustules, as if on that account their origin was local. Was any fact better known than that the soil presented to a micro-organism was the leading factor, and not the advent of the microbe? Most suppurative skin diseases were microbial, but that which determined the soil for their growth in the skin lesion must chiefly concern the physician. However, our local applications and the use of curette or needle were of service temporarily by disposing of the microbes already growing. The mode in which ergot acted was not yet determined.

Dr. CRANMER thought the facts brought out by the discussion not essentially different from those recognized thirty years ago. Dr. Bronson had given the more important fact, in his opinion. Married life would terminate most cases of acne. Dr. Thomson's line of treatment he thought next in value. He himself used alkalies also, and the old-fashioned but efficacious decoctum aloes. Sometimes two Turkish baths a week were all that were required for a cure.

Dr. BULKLEY thought the lesson taught in the evening's discussion was that there was no one line of routine treatment in skin affections. All the methods spoken of had their value in suitable cases. He was thankful to Dr. Thomson for bringing out the fact that the origin of acne was not altogether in pelvic conditions. He himself had come to regard the digestive much rather than the genito-urinary system as the point of origin for the disturbance. He had cured many cases by attention to the chylopoietic system only. He had met with severe and obstinate acne in a number of married people with large families. Irritation of the surface in acne, as by the curette or a rough shave, had of itself an unquestionable value. For extracting comedones he used a minute cataract knife, and an extractor much like a watch-key. As to heredity in psoriasis, his records

showed two hundred and eighty-six cases where it had occurred in one member of a family, but not in the brothers or sisters, and but forty-one in which the reverse had obtained.

Miscellany.

Plants and their Alkaloids.—In the "Bulletin médical" for May 8th, Dr. S. A. Nitard remarks that, in an important paper recently read at the Paris Academy of Medicine, Professor Germain Sée very correctly stated that in therapeutics alkaloids and the plants from which they were derived should not be confounded. These remarks were made in regard to strophanthus and strophanthine, but the author pointed out that they might be equally well applied to a number of alkaloids and plants used daily in practice. In fact, the essentially different nature of the effects of digitalis and digitaline, of opium and morphine, of cinchona and quinine, and of many plants and the alkaloids derived from them, was well known. Coca, says Dr. Nitard, is indisputably the drug to which, above all others, these remarks may be applied. *Erythroxylon coca* possesses, without doubt, analgesic properties, and is held as a superior local sedative, especially where pain exists in the region of the mouth and the throat (as noted and published by Professor Charles Fauvel long before the discovery of the local effects of cocaine), and in calling attention to the virtues of this plant it may be stated that the beneficial effects of wine of coca have been thoroughly established in tuberculous and other ulcerations of the tongue, in the mouth, on the lips, and on the vocal cords; in all this class of cases such a preparation is of great value, prolonging as it does the anæsthetic and sedative effects of cocaine when applied topically, or when such application becomes for one reason or another impracticable, proving itself of great service to the physician by reason of its local action. As coca differs essentially from cocaine, the action of the plant upon the general economy, and not its local action, should be borne in mind. Coca is a most active stimulant tonic, especially when used in vinous combination. No better preparation can be employed than the *vin Mariani*, which contains all the valuable properties of the plant, combined with a generous and absolutely pure wine. This has been found to give the best results. There are numerous conditions in which this preparation is indicated; in a general way, it is serviceable in all those various diseases which come under the clinical head of anæmia, weak heart, chlorosis, various forms of cachectic conditions, neurasthenia, general debility, and convalescence from fevers. As tuberculosis presents essentially anæmic features, it may readily be understood that in it the happiest results may be obtained by the use of this preparation of coca, as also in the other forms of phthisis. Although coca is not a specific in phthisis, and although the author does not assert that it is a destroyer of the bacillus of Koch, it nevertheless proves its efficacy in that disease, he says, and, as has quite recently been stated in Libermann's important work, "La phthisie pulmonaire et laryngée," the bacillus is not the sole factor to be considered in phthisis. Contained largely as it is in the atmosphere which we inhale, it happily remains inert in the great majority of cases. In other words, its victims are those in whose organism it finds a fertile field for growth and development. All our efforts should therefore be in the direction of rendering this field less susceptible to the inroads of the bacillus of tuberculosis until such time as we may be able to act more directly upon this dangerous germ. Among other means at our command to combat and to guard the organism against these inroads may be mentioned hydropathy, hygiene to the fullest extent, and climatology, which should always be taken into consideration by the physician and the patient. All these data are of absolute importance, and at the same time the physician should have at his command some agent which in all cases will, by its reliable action as a diffusible tonic and stimulant, fill the following indication during treatment, namely: The maintenance of perfect nutrition and the guarding against debility in its various forms. A tonic in every respect answering to these indications, and

one which, it has been found, may be given for an indefinite period without any unpleasant reaction in wasting diseases, is wine of coca. The preparation known as *vin Mariani*, which has been employed by the medical profession for the last thirty years, is the only one which has given the author uniformly good results without the unfavorable features which frequently follow in the wake of tonics and stimulants. And he attributes this to the fact that it represents all the volatile principles of the plant, thus differing essentially from preparations made from the dried, comparatively inert leaf (the volatile principles being absent) or, through ignorance of the proper requirements, containing a dangerous added percentage of the alkaloid cocaine. Thus, the author concludes, will be seen the necessity of recognizing the merits of this plant independently of its alkaloid, and the wide field it should occupy in therapeutics.

The Treatment of Hiccough.—Dr. John I. Brinkerhoff, of Auburn N. Y., writes that he has found calamus a remedy for hiccough in every case in which he has used it, including some cases of an aggravated character. A very small quantity suffices, only enough to reach the throat when dissolved by the saliva.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending June 28th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—										
				Cholera.	Yellow fever.	Small-pox.	Varioloid.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Whooping-cough.	
New York, N. Y.	June 22.	1,570,428	760	..	..	..	..	..	..	6	8	32	5	8
Philadelphia, Pa.	June 22.	1,046,245	400	..	..	..	..	..	..	17	10	6	6	1
Brooklyn, N. Y.	June 22.	821,525	228	..	..	..	..	..	..	3	7	17	..	6
Baltimore, Md.	June 22.	500,343	228	..	..	..	..	..	..	5	2	2	1	..
San Francisco, Cal.	June 14.	390,000	97	..	..	..	..	..	..	6	..	1	..	..
Cincinnati, Ohio.	June 22.	325,000	115	..	..	..	..	..	..	4	..	4	6	1
New Orleans, La.	June 15.	254,000	117	..	..	..	..	..	..	1	..	3	..	..
Washington, D. C.	June 22.	225,000	122	..	..	..	..	..	..	2	2	2	1	1
Milwaukee, Wis.	June 22.	210,000	54	..	..	..	..	..	..	3	1	..	..	..
Minneapolis, Minn.	June 23.	200,000	38	..	..	..	..	..	..	2	2	2	..	..
Pittsburgh, Pa.	June 22.	230,000	100	..	..	..	..	..	..	4	4	..	2	1
Providence, R. I.	June 22.	127,000	50	..	..	..	..	..	..	1	..	..	..	2
Denver, Col.	June 21.	100,000	43	..	..	..	..	..	..	..	..	2	..	..
Richmond, Va.	June 22.	100,000	43	..	..	..	..	..	..	..	..	..	..	..
Toledo, Ohio	June 21.	83,500	20	..	..	..	..	..	..	..	..	..	..	..
Nashville, Tenn.	June 22.	65,153	21	..	..	..	..	..	..	1	..	..	..	..
Fall River, Mass.	June 22.	65,000	26	..	..	..	..	..	..	..	..	..	..	..
Charleston, S. C.	June 22.	60,145	38	..	..	..	..	..	..	..	..	..	..	..
Lynn, Mass.	June 22.	50,000	11	..	..	..	..	..	..	..	..	..	..	..
Manchester, N. H.	June 15.	42,000	19	..	..	..	..	..	..	..	..	..	..	..
Portland, Me.	June 22.	42,000	4	..	..	..	..	..	..	..	..	..	..	..
Galveston, Texas	June 7.	40,000	4	..	..	..	..	..	..	..	..	..	..	..
Council Bluffs, Ia.	June 17.	35,000	10	..	..	..	..	..	..	..	..	..	..	..
Davenport, Iowa.	June 22.	23,715	10	..	..	..	..	..	..	..	..	..	..	..
San Diego, Cal.	June 15.	32,000	6	..	..	..	..	..	..	1	..	..	..	..
Altoona, Pa.	June 22.	30,000	6	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	June 23.	30,000	6	..	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	June 22.	26,000	8	..	..	..	..	..	..	..	..	..	..	..
Haverhill, Mass.	June 22.	25,000	6	..	..	..	..	..	..	..	..	..	1	..
Newport, R. I.	June 19.	22,000	6	..	..	..	..	..	..	..	..	..	..	..
Newton, Mass.	June 22.	21,553	7	..	..	..	..	..	..	..	..	..	..	..
Keokuk, Iowa.	June 22.	16,000	2	..	..	..	..	..	..	..	..	..	..	..
Pensacola, Fla.	June 22.	15,000	3	..	..	..	..	..	..	..	..	..	..	..

THERAPEUTICAL NOTES.

Bisulphide of Carbon.—On the authority of some observations made chiefly in the Purisima Hospital, Santiago, and published in the "Revista médica de Chile," a recent number of the "Lancet" shows that bisulphide of carbon may have more therapeutic power than is usually attributed to it. In England bisulphide of carbon has been employed for diarrhoea and externally for ulcers. Sapehier used it with apparent advantage in typhoid fever. It has also been recommended in diphtheria and other diseases in which micro-organisms occur. The Chilean cases referred to included one of acute and one of chronic dysentery, one of atonic dyspepsia, one of simple gastric ulcer, and one of typhoid fever. About two ounces of a saturated solution of the bisulphide in water, mixed with half a tumblerful of milk or a little syrup, to be taken half an hour or so before meals, was the dose generally given. In the typhoid case, enemata of a pint of water, containing about half a drachm of bisulphide of carbon, were administered to

the patient, a child of ten years, whose condition was becoming serious. Iodide of potassium and kairin were also given internally. The diarrhoea lessened, the stools rapidly lost their offensive character, the gurgling disappeared from the iliac region, and the patient made a good recovery.

Uralium as a Hypnotic.—According to one of the March numbers of the "St. Petersburger medicinische Woehenschrift," which quotes from the "Gazzetta degli Ospitali," Poppe employs uralium, a combination of urethane and chloral hydrate, in cases of heart disease, insanity, hysteria, and other nervous affections. He finds that it induces a natural, peaceful sleep, and has a safer and more lasting effect than the hypnotics known heretofore.

ANSWERS TO CORRESPONDENTS.

No. 271.—The solution is made with 8 drachms each of sodium, bicarbonate and borax, 20 grains each of sodium benzoate and sodium salicylate, 10 grains each of euealyptol and thymol, 5 grains of menthol, 6 drops of oil of gaultheria, 8½ ounces of glycerin, 2 ounces of alcohol, and enough water to make 16 pints.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

HUMAN CALORIMETRY.

SECOND CONTRIBUTION.

By ISAAC OTT, M. D.,
EASTON, PA.

THE power to do work is called energy, and the animal body sets energy free in only two ways—mechanical work and heat. The human machine is an apparatus for converting potential into actual energy, the potential energy being supplied by food, which is changed into the actual energy of heat and work by the metabolism of the organism. To heat has been ascribed five sixths and to mechanical work one sixth of the energy set free. In a paper* recently published there was described an apparatus to determine in a direct manner the amount of heat produced by man. Since that time two improvements have been made in the apparatus; instead of a wooden door an iron one has been used and bound down by eight powerful screw-clamps. The interior edge of the door was lined with rubber as before. In the other apparatus a straight tube permitted the air to enter in a direct way; now it traverses a coiled leaden tube before it reaches the person experimented with. The coiled tube is inside the calorimeter; perhaps it would be better if it was coiled in the water between the cylinders. This arrangement is intended to prevent heat dissipation. With these arrangements and a mattress inside the instrument I have retested the apparatus. As the apparatus necessary for the hydrogen test was not available, I used absolute alcohol. The different physicists who have burned a gramme of alcohol have obtained the following various numbers: Thus Rumford obtained 6,195; Du Long, 6,962; Andrews, 6,850; and Favre and Silbermann, 7,183.6. These numbers mean so many gramme-calories, and the number 7,183 is supposed to be the most accurate. In their experiments, in order to allow for the loss of heat due to radiation, a preliminary experiment was made with the body whose heat was sought, the only object of which was to ascertain approximately the increase of temperature of the cooling water. If this increase be 10°, for example, the temperature of the water calorimeter was reduced one half this number—that is to say, 5° below the temperature of the atmosphere. By this method the water of the calorimeter receives as much heat from the atmosphere during the first part of the experiment as it loses by radiation during the second part. This procedure is called Rumford's compensation. In the human calorimeter the air-tube must be of considerable size for the air to enter, and necessarily permits of considerable loss of heat by the air constantly traversing the instrument. I have tested my calorimeter before and after the performance of the experiments. I give here a test with alcohol:

Time.	A. T.	C. T.	E. T.	Metres.
1.24.....	83°	74.20°	75.5°	758,274
2.24.....	82.3°	74.61°	75.8°	762,650
	82.6°	74.1°	75.6°	3,376

* "New York Medical Journal," March 30, 1889.

577.42 = number of heat units required to raise the calorimeter 1° F.

577.42 + .41 rise in calorimeter temperature = 236.74 heat units.

Alcohol burned = 9.235 grains × 7,183 number of gramme-calories by burning a gramme of alcohol = 66.33 kilo-calories. As one kilo-calorie is equal to 3.96 heat units, then 66.33 × 3.96 = 262.66.

V = 3,376 litres of air pumped through the calorimeter.

t = 75.6° - 32° = 43.6°, number of degrees the air is heated above 32°.

V + (v × 43.6 × .002035, co-efficient of expansion) = 3,376.

V + .0887260 V = 3,376.

1.0887260 V = 3,376.

V = 3,376 ÷ 1.088 = 310.29.

W = V × .00285, weight of litre of air at 32° F.

W = 310.29 × .00285 = 8.84 lbs.

Q = W × t × specific heat.

Q = 8.843 × 7° × .2374 specific heat of air = 14.69, number of heat units given to the calorimeter by the air.

Then 236.74 - 14.69 = 222.05, number of heat units obtained in burning the alcohol.

But the alcohol burned produced 262.66 heat units, and of these 222.05 have been recovered; then 262.66 - 222.05 = 40.61 = loss of heat units or error of the calorimeter. Then the percentage of error is 40.61 ÷ 262 = 15.5. In other words, all results by the calorimeter must have 15.5 per cent. added to them, that they may be accurate. In this paper I have made the percentage of error 16 per cent., as the mean of several experiments showed this to be the average error of the instrument. The constancy of the error made the apparatus one of precision for scientific work.

In my experiments upon man the calculation was made in the same manner. The specific heat of the body was taken to be 0.83.

In estimating the moisture I used Voit's little respiration apparatus, taking the moisture of the air of the room and deducting it from the moisture of the air coming from the calorimeter. Now, according to Helmholtz, 1,000 grammes of water require 582 calories in evaporation from the lungs and skin; then one gramme of water from the lungs requires $\frac{2}{3}\frac{1}{10}$ calories = 2.304 heat units to vaporize it.

The glass bulbs were filled partly with sulphuric acid, and weighed on a delicate balance before and after the absorption of moisture from the air.

The experiments were performed upon a man aged thirty-five years, weighing one hundred and ninety-two pounds, five feet ten inches high, muscular, and in fair health. When he entered the instrument he removed his coat and vest. The observations began about 1 P. M., and terminated at 6 P. M. He dined at 12 M. The food from breakfast and part of the dinner must have been measured in the estimate of heat production, and would give the highest estimate of the twenty-four hours. In my first paper, although the number of heat units obtained was not accurate from want of reliable tests, yet I arrived at the conclusion that the estimates in an indirect manner from the egesta and ingesta were too high. The hourly average was found to be 410 heat units. Now, Leon Fredericque, from the computation of several authors, makes 1.5 calories or 5.94 heat units an hour to the kilogramme of weight as the average heat production. This for the man I employed would be 512 heat units. The heat from the aqueous vapor in condensation was estimated, but the major part was condensed on the interior of the instrument as the

hand perceived, or in the twenty-five feet of lead pipe traversed by the air. This point came up in the Clausius-Hirn controversy. As is readily seen, the computations for man in the indirect manner are too high, as I believed in my first contribution. Rosenthal recently has found in animals on full diet that the absolute amount of heat was less than that calculated out from oxidation of food, but with a uniformly constant diet the mean value of heat production corresponded to the heat calculated from the combustion of the food. I also made some experiments upon the amount of heat thrown off by the lungs. A piece was removed from the iron door and the man's head enveloped in blankets inserted within the calorimeter. The person sat upon a chair during the observation. In this manner was obtained an hourly average of 57.98 units, thus being of the whole number of heat units to the hour 14 per cent.

Seharing used an imperfect air calorimeter, and in a similar manner found the amount from the lungs to be 14 to 20 per cent. of the whole amount. Helmholtz makes the amount 14.7 per cent. as coming from the lungs.

The rapid rise of temperature in pneumonia is probably due to an interference with the heat dissipation of the lungs by the inflammatory state. The thermo-polypnoëic center may be active as usual, but it can not overcome by maximal stimuli the obstruction to heat dissipation.

By placing a pulley outside the calorimeter and attaching to a leather rope a fourteen-pound weight, the man was able by means of the leather rope to exercise within the instrument. The leather band entered one of the air-holes in the instrument. He was only permitted by a knot in the rope to raise this weight a foot high. By moderately lifting 4,222 foot-pounds, an average increase of 94.21 heat units an hour was obtained.

By lifting an average of 7,623 foot-pounds an hour the amount of heat units was doubled over the normal by about one hundred heat units. Hirn, using an air calorimeter of great inaccuracy, found a man aged forty-two at rest to produce 189 calories, while during movement it amounted to 325 to 356 calories. Pettenkofer and Voit found on hunger-day without work the carbonic acid was on an average 716 grammes; on hunger-day with work (turning a loaded wheel), 1,187 grammes; on food-day without work, an average of 928 grammes; with work on food-day, 1,285 grammes; or in nine hours on food-day without work 400 grammes, and on food-day with work 724 grammes. The researches of Rosenthal show that the hourly dissipation, as estimated by the calorimeter, when compared with the hourly excretion of CO₂, shows a very variable relation of the "carbonic-acid factor."

A. T. means air temperature. C. T., calorimeter temperature.
E. T., exit-tube temperature. M. T., mouth temperature.

FIRST DAY.						
Weight, 192.56 pounds.	Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.54 P. M.	80.0°	76.69°	77.9°	98.7°	98.7°	804,335
2.54	82.0	77.36	78.8	98.2	98.2	810,402
	81.0	76.7	78.3	98.5	98.5	6,067
	78.3					
	2.7					
H. D. = 371.08; H. P. = 291.17.						

Weight, 192.24 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
3.26	82.5°	77.23°	78.8°	98.8°	812,550
4.26	82.8	77.99	79.2	98.7	817,676
	82.6	76	79.0	98.1	5,126
	79.0				
	3.6				
H. D. = 427.31; H. P. = 411.36.					

Weight, 191.90 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.47	83.8°	77.80°	79.3°	98.7°	819,375
5.47	84.4	78.58	80.0	98.3	824,429
	84.1	78	79.6	98.4	5,054
	79.6				
	4.5				
H. D. = 438.13; H. P. = 374.42.					

Average, 358.88; add 16 per cent. = 416.30.

SECOND DAY.					
Weight, 191 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.40 P. M.	82.0°	74.60°	75.5°	98.3°	826,900
2.40	83.1	75.28	76.1	98.3	832,112
	82.5	76.8	75.8		5,212
	75.8				
	6.7				
H. D. = 359.07; H. P. = 359.07.					

Weight, 190.68 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
3.06	83.0°	75.21°	77.5°	98.2°	832,112
4.06	82.8	75.90	77.5	98.3	837,112
	82.9	76.9	77.5	98.1	5,000
	77.5				
	5.4				
H. D. = 370.19; H. P. = 386.02.					

Weight, 190.40 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.36	82.4°	75.78°	77.5°	98.2°	837,112
5.36	81.0	76.30	77.6	97.9	842,360
	81.7	75.2	77.5	98.3	5,248
H. D. = 285; H. P. = 237.98.					
Average, 327.69; add 16 per cent. = 380.12.					

THIRD DAY.					
Weight, 191.82 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.10 P. M.	80.5°	70.83°	72.7°	98.2°	847,825
2.10	80.0	71.40	73.0	98.1	853,415
	80.2	71.7	72.8	98.1	5,590
H. D. = 301.02; H. P. = 286.11.					

Weight, 191.18 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
2.52	81.5°	71.37°	73.2°	98.2°	853,415
3.52	79.8	71.97	73.4	98.4	858,821
	80.6	71.6	73.3	98.2	5,406
H. D. = 319.65; H. P. = 351.38.					

Weight, 191.18 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.22	77.6°	71.83°	73.5°	98.4°	858,821
5.22	81.0	72.54	74.0	98.4	864,537
	79.3	71.7	73.7		5,716
H. D. = 388.22; H. P. = 388.22.					
Average, 341.90; add 16 per cent. = 396.60.					

Now, the average of the three days' observations is 397.66.

The average amount of moisture coming over from the calorimeter and absorbed by the sulphuric-acid bulbs was 5.49 grammes, and as it requires 2.30 heat units to vaporize a gramme of water, then a gramme of watery vapor in condensing will give off 2.30 heat units, and 5.49 grammes will give off 12.62 heat-units; then 397.66 + 12.62 = 410.28 heat units as the daily afternoon average of a man weighing 192 pounds.

HEAD ONLY IN THE CALORIMETER.

Weight, 191.34 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.07 P. M.	79.2°	71.53°	72.9°	98.3°	
2.07.	80.8	71.60	72.9	98.3	5,700
	80.0	.07	72.9		

H. D. = 13.04; H. P. = 13.04.

Weight, 191.12 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
2.47.	82.2°	71.65°	73.1°	99.3°	
3.47.	82.5	71.78	73.2	99.3	5,180
	82.3	.13	73.1		

H. D. = 42.85; H. P. = 42.85.

Weight, 190.84 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.18.	80.6°	71.80°	73.2°	98.2°	
5.18.	78.2	71.88	73.0	98.2	5,108

H. D. = 24.09; H. P. = 24.09.

Average of the day, 26.98.

HEAD ALONE IN CALORIMETER.

Weight, 192.58 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.11 P. M.	80.4°	71.30°	73.0°	98.2°	
2.11.	79.9	71.41	73.0	98.6	5,325
		.11		.4	

H. D. = 37.95; H. P. = 5.97.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
3.0.	79.8°	71.48°	72.6°	97.8°	
4.0.	79.8	71.57	73.2	97.8	5,165

H. D. = 29.61; H. P. = 29.61.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.31.	80.2°	73.62°	73.2°	97.6°	
5.31.	80.6	73.74	73.2	97.6	5,270

H. D. = 44.49; H. P. = 44.49.

Daily average, 26.69.

Average H. P. of the two days, 26.83 + 16 per cent. = 31.13.

Now, on an average, 12.5 grammes of moisture come over from the lungs. This would make 28.75 heat units from the condensation of vapor. Then 31.13 + 28.75 = 59.88 heat units as the average amount thrown off by the lungs, or about 14 per cent. of the whole amount of heat thrown off by the body. The reason that the moisture coming over from the lungs alone exceeds that normally coming over from the whole body is that the man is breathing immediately under the lead coil through which the air is aspirated; normally he lies with his head at the other end of the calorimeter.

LIFTS A FOURTEEN-POUND WEIGHT ONE FOOT HIGH.

Weight, 191.50 pounds. Lifts weight 201 times = 2,814 pounds.					
Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.2 P. M.	77.5°	72.10°	73.6°	98.4°	
2.2.	76.8	72.80	74.5	98.7	3,965
		.70		+.3	

H. D. = 396.18; H. P. = 453.90.

Weight, 191.32 pounds.

Lifts weight 340 times = 4,760 foot-pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
2.49.	79.8°	72.95°	74.7°	98.8°	
3.49.	78.2	73.63	75.3	98.85	4,780

H. D. = 379.71; H. P. = 387.64.

Weight, 190.58 pounds.

Lifts weight 465 times = 6,510 foot-pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.30.	78.0°	73.74°	75.5°	98.7°	
5.30.	78.2	74.40	76.0	98.7	4,615

H. D. = 381.09; H. P. = 373.60.

Average H. P. = 405.04, add 16 per cent. = 469.84.

Lifts weight 315 times = 4,410 foot-pounds.

Weight, 191.16 pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.20.	82.5°	70.51°	71.8°	98.5°	
2.20.	78.7	71.29	72.8	98.45	4,890
		.78			

H. D. = 450.38; H. P. = 414.78.

Lifts weight 312 times = 4,368 foot-pounds.

Weight, 190.84 pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
3.7.	78.9°	71.34°	73.0°	98.05°	
4.7.	78.9	71.91	73.4	98.05	4,897
		.57			

H. D. = 329.12; H. P. = 310.29.

Lifts weight 320 times = 4,480 foot-pounds.

Weight, 190.4 pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
4.31.	78.9°	71.92°	73.8°	98.4°	
5.31.	82.2	72.60	74.2	98.6	4,849
		.68			

H. D. = 380.32; H. P. = 411.92.

Average per hour, 378.99, add 16 per cent. = 441.62.

Add average amount of moisture in sulphuric-acid bulbs per hour, 21.2 grammes, or 48.76 heat units. Then 455.73 + 48.76 = 504.49 heat-units per hour by moderate work in lifting a weight, an average increase of 94.21 heat units per hour for 4,222 foot-pounds of work.

Lifts 14 pounds 353 times = 4,942 foot-pounds.

Weight, 190.22 pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
1.12.	84.0°	72.34°	74.1°	98.35°	
2.12.	83.1	73.28	75.0	98.7	4,868
				.45	

H. D. = 658.35; H. P. = 716.13.

Lifts 14 pounds 736 times = 10,304 foot-pounds.

Weight, 189.84 pounds.

Time.	A. T.	C. T.	E. T.	M. T.	Litres.
2.51.	82.9°	73.23°	75.0°	98.6°	
3.51.	81.5	74.31	75.8	98.9	4,911

H. D. = 761.36; H. P. = 808.58.

Average per hour 762.30, add 16 per cent. = 884.26.

Add 21.2 grammes of moisture or 48.76 heat units, and I have 933.02 heat units produced by hard labor in lifting weights; an average of 7,623 foot-pounds producing an increase of 522.74 heat units above his average, over double the normal by about a hundred heat units per hour. Taking the last experiment, elevating about five tons per hour a foot high doubles the heat production per hour.

The following are the chief conclusions of this paper:

1. A man weighing one hundred and ninety-two pounds during the afternoon produces 410 heat units in an hour on

an average, and not 512, as calculated by oxidation changes and the amount of egesta.

2. Of the whole amount of heat dissipated, about 14 per cent. is thrown off by the lungs.

3. The elevation of about five tons an hour a foot high doubles the hourly heat production.

THE DIAGNOSIS AND TREATMENT OF CERTAIN FORMS OF RHINITIS.*

BY CHARLES H. KNIGHT, M.D.

SINCE we have learned to recognize the intimate relations between the nose and other organs, the importance of nasal pathology is in danger of being overestimated. Instances of nasal reflex have multiplied to an alarming extent. Asthma, chorea, epilepsy, ocular and aural disturbances, headache, and laryngeal affections are familiar examples. It seems that the list of ills for which the nose is to be held responsible is not limited to neuroses. An attempt has been made to show that intestinal hernia may be caused by intra-abdominal pressure resulting from constant hawking, coughing, and sneezing, provoked by chronic obstruction or disease of the nares.† A condition, perhaps not very uncommon, termed by Guye,‡ of Amsterdam, "aprosixia," is said to depend upon nasal disease. It consists, as the name implies, of inability to fix the attention, is accompanied by marked physical and mental depression, and is supposed to result from obstruction of the lymphatics which pass from the brain to the nasal fossæ. Haack, whose observations in the department of nasal neuroses have been especially numerous, goes so far as to propose treating certain joint affections through the nasal mucous membrane, and it has even been affirmed that such a disease as primary laryngitis does not exist, nasal stenosis or a nasal lesion invariably being found to act as a predisposing cause of simple inflammation of the larynx. Yet, making due allowance for the play of imagination on the part of the observer and of the patient, it must be admitted that nasal lesions aggravate and even excite phenomena in other regions remote from as well as in proximity to the nose. There seems to be no fixed proportion, as regards importance, between the nasal trouble and the associated disorder. Serious nervous phenomena sometimes appear to depend upon comparatively trifling structural change within the nasal fossæ. On the other hand, extensive intranasal disease may fail to produce reflex or other disturbance, and it is not unusual to discover extreme abnormal conditions within the nose the existence of which had not been suspected. In the presence of a decided pathological condition or deformity, such as a collection of polypi or a well-defined ridge or deviation of the septum, it may be quite safe to assume that an asthma, a frontal headache, impaired hearing, or a more serious neurosis, may depend upon the local lesion and will disappear

on its removal. Independently of these grosser lesions, it seems to be an established fact that certain changes limited to the mucous membrane may excite neurotic phenomena. A satisfactory explanation of the relation of cause and effect here displayed can be reached only through a study of the physiology and pathology of the sympathetic nervous system.

Without entering upon a discussion of this question, it has seemed to me that we might profitably give a few moments to a consideration of the changes referred to, which may be included under the terms hyperæmia, hypertrophy, and hyperplasia. Although one or more of these pathological conditions is conspicuous in every case of rhinitis, yet no little confusion exists regarding the meaning and application of these terms, and clinically the conditions are separated by no fixed line, but merge into each other by imperceptible gradations.

Hyperæmia is defined as "preternatural accumulation of blood in the capillary vessels, more especially local plethora"—in other words, "congestion."

Hypertrophy is "the state of a part in which the nutrition is performed with greater activity, and which, on that account, at length acquires unusual bulk." Finally, hyperplasia is "excess of formative action." Dunglison, from whom these definitions are taken, says that "hyperplasia relates to the formation of *new* elements, hypertrophy being an increase in bulk of pre-existing normal elements." For this reason the former has been called "numerical hypertrophy," the enlargement of the part being due to increase of the number of elements entering into its composition. The word hyperæmia is used to include both capillary congestion and distension of the venous sinuses of the turbinated bodies, the so-called "erectile tissue." The latter process is to a certain degree physiological. In simple hypertrophy there is merely increase of bulk as a result of increased functional activity, but the word is also employed to designate enlargement from prolonged irritation. In the latter sense it may properly include both hyperplasia and hyperæmia, as just defined. But in true hypertrophy, function is more active, while in hyperplasia it is impaired. This distinction is of special interest in connection with a rather sweeping assertion recently made by a distinguished authority to the effect that in all cases of chronic nasal catarrh secretion is actually diminished. The most striking example of genuine hypertrophy is seen in the turbinated enlargement projecting toward the concave side of a deviated septum. At first glance the deflection would seem to be a result of the hypertrophy, whereas the reverse is generally if not always true. As guardian of the inferior meatus, the inferior turbinated body must increase its dimensions as the bending septum expands the nasal cavity. So with increased function we have increased bulk. Strictly speaking, "hypertrophy" should be reserved to describe conditions of this kind, but its application to all forms of thickening of the nasal mucous membrane is to some extent authorized by long usage, and it may now be difficult if not impossible to restrict it within proper limits. Perhaps one excuse for retaining the word hypertrophy as a synonym for hyperplasia is that the former is more euphoni-

* Read before the Section in Laryngology of the New York Academy of Medicine, May 28, 1889.

† W. Freudenthal, "Monatsschr. für Ohrenheilk.," etc., No. xi, 1887.

‡ "Deutsche med. Wochenschr.," No. 43, 1887.

ous. It should be understood, however, that it is not ordinarily applied to simple vascular engorgement of the turbinated body, although it may be in reality more appropriate to that condition. Clinically, therefore, we mean by "hypertrophy" a condition of permanent thickening of the mucous membrane due to the existence of more or less hyperplasia.

From a therapeutic standpoint it is important that we should distinguish between hyperplasia, or hypertrophy, and hyperæmia with turgescence of the turbinated "erectile tissue." Persistence of the last-mentioned condition leads to the former, and here preventive medicine is offered a most inviting field. How may we arrest the tendency of chronic hyperæmia of the nasal mucous membrane to pass on to a condition causing perpetual discomfort to its victim, and requiring for its cure rare patience and endurance on the part of all concerned? To begin with, it is essential that we should be familiar with the objective appearances of these conditions. The subjective symptoms may not much differ, except as regards duration and intensity, but, by combining the information gained by the eye, by touch with the probe, and by the use of cocaine, we may usually discriminate. It may be difficult to assign certain cases which occupy the border line to their proper class, but we may at least determine which type predominates. Hyperæmia finds its typical representation in the condition popularly known as a "cold in the head"—acute catarrhal rhinitis. But, as a matter of fact, persons thus affected seldom consult a physician, so that clinically we most often meet with it in those already suffering from chronic rhinitis. Consequently, the same subject often offers us a field for the study of various pathological conditions, the same nasal cavity exhibiting at one point simple hyperæmia, at another the changes of chronic inflammation. Possibly, too, in neglected cases, or in those affected with a constitutional disease, still another region may have reached that unfortunate condition of atrophy, with its unmistakable symptoms. Admitting, therefore, the possible concurrence of these different conditions in the same individual, we shall more fully realize the importance of identifying them and adapting to each, as far as possible, its appropriate treatment.

It is unnecessary to review all the symptoms of the various forms of rhinitis. I merely wish to remind you of certain distinctive features met with in a rhinoscopic examination. The special points to be noted are the color of the surface, the character of the nasal secretion, the extent and shape of the swelling, its density or resistance, its sensitiveness, and its vascularity. Inspection shows the color of the parts in hyperæmia to be intensely red, and the secretion, after the first stage, is copious and fluid. The tumefaction is uniformly globular, easily compressed, usually quite sensitive, and it bleeds readily on rough contact with the probe. In hyperplasia the color of the surface is less intense, it is often livid or purplish, and in advanced cases it is quite apt to be paler than normal. The swelling may have an irregular contour, owing to variation in the amount of new tissue at different points, and is usually neither very sensitive nor very vascular. Occasionally the membrane becomes distinctly lobulated or papillated. This

is most commonly seen at the posterior extremity of the inferior turbinated body, where the shape and color of the tumor have caused it to be compared to a mulberry. Its appearance in the rhinoscopic mirror is pathognomonic. This variety may be exceptionally vascular, and we sometimes observe quite protracted bleeding after the use of the snare in such cases. The nasal secretion is apparently increased, because of the fact that it has become less fluid and more tenacious, and hence is apt to be retained within the nasal cavities. Undoubtedly, with increase of hyperplastic tissue and consequent interference with the function of the glands of the mucous membrane, the secretion is not only perverted in quality, but notably diminished in quantity. Here the cause is largely mechanical. Decrease of secretion may also be observed in certain forms of rhinitis, without marked hyperplasia. In the latter case the interruption of function is perhaps of neurotic origin. The contrast in the behavior of hyperæmia and hyperplasia on pressure with a probe and under cocaine is very striking. The hyperæmic swelling yields readily to pressure, and quickly recovers its shape as the blood-vessels refill. The hyperplastic swelling is much more solid and resistant, lacks the smooth, tense appearance of the former, and is capable of relatively slight compression. The tissues do not give way to the probe, and on the removal of pressure the furrow made by the instrument is slowly effaced. A similar phenomenon is observed with cocaine. The hyperæmic swelling rapidly shrinks to the subjacent bone. In hyperplasia the mucous membrane can not contract more than may be permitted by the new connective tissue. In this way cocaine has become a most valuable addition to our diagnostic resources. It is also of great service in connection with treatment, by mapping out the regions more particularly affected by structural changes. By attention to the foregoing points we may escape at least two errors—first, that of operating with a snare on a simple vascular swelling of the turbinated body, and, second, that of attempting to cure a case of confirmed hyperplastic rhinitis by means of sprays and local medications.

In considering the treatment of these conditions it is impossible to exaggerate the influence of constitution and diathesis. Consequently, general therapeutics, diet, and hygiene must not be neglected. Occupation, habits, and climate are in many cases important factors, and should receive due attention.

Local treatment with sprays, donches, vapors, medicated bougies, ointments, and powders may be used according to the taste or credulity of the practitioner. It may be accepted as a first principle in nasal therapeutics that simple catarrhal rhinitis should receive only the most unirritating applications. In general, everything more than momentarily painful should be avoided. Sedative steam inhalations and preparations of medicated vaseline or oil are usually most grateful and least harmful. Fluid albolene, a petroleum product recently introduced, is an elegant vehicle for many of the more useful medicaments, which may be applied in the form of spray or vapor. Astringents, though largely used, are of doubtful value. Cocaine gives temporary relief by removing stenosis, but there is reason to suspect that its frequent

and habitual use may do serious damage. Antipyrine has recently been recommended by Hinkel,* and it seems to possess antiseptic, sedative, and hæmstatic properties. Its anæsthetic effect is said to resemble that of cocaine, being less marked but more protracted.

The use of sprays has been discarded by some whose opinion is worthy of regard. My own belief is that much of the discredit which has befallen the spray arises from the fact that too much is expected of it. We hear to-day of cases of chronic catarrhal rhinitis cured in a few weeks by sprays of medicated vaseline. There must be something peculiarly antagonistic in the climate of New York, since I am not acquainted with any one here who works these miracles. Again, there is no doubt that damage may be done by excessive air pressure and improper medication, and thus the disrepute of the spray be still further extended. But under proper precautions the spray is a valuable, if not an essential, adjuvant in the treatment and cure of catarrhal conditions. I use the word *cure* with hesitation, since we must all recognize the difficulty of entirely eliminating climatic and seasonal elements, and some of our spring cures are likely to return to us for treatment with the first bleak winds of autumn. In those obstinate cases of chronic turgescence on the border line of hyperplasia linear cauterization, superficial or submucous, may be required. My experience with the latter and with interstitial injections of carbolic acid, ergotine, etc., has been very limited. Reports from certain observers are favorable, yet the precise advantage of these methods is not quite clear.

When, in spite of treatment, or perhaps in consequence of treatment, or as a result of repeated attacks of inflammation, hyperplasia has supervened, these measures are seldom sufficient. The mass of newly formed tissue, which interferes with the functions of the nose, must be removed by surgical methods or destructive agents. The knife, the saw, scissors, drills, the snare, the galvano-cautery, and various chemical caustics may be selected from, according to the indications in each case. At the same time strict cleanliness and asepsis should be maintained by means of frequent irrigations with Dobell's solution or a similar detergent, or weak solutions of bichloride of mercury. It is an excellent rule in these cases to make haste slowly; not attempt to do too much at one sitting. It is much easier to repeat the operation than to restore tissue which has been destroyed. The danger of establishing a condition of atrophy should always be remembered. What we desire to accomplish is not merely the removal of obstruction, but also the restoration, if possible, of normal secreting function. While the morbid process is still confined to the mucous membrane, caustics, of which chromic acid is just now the favorite, and the galvano-cautery will be found most useful. The removal of more extensive hyperplasia may be most readily effected by means of the cold wire snare. In my experience, as a general rule, hypertrophies which can not be engaged in the loop of the snare without the aid of transfixion needles may be more easily reduced by the galvano-cautery. I prefer to use a very

slender electrode at a white heat. Thus the field is not obscured by a clumsy instrument and the tissue is rapidly destroyed. If the space between the walls of the nasal fossa is very narrow the septum should be protected by an ivory shield, or we may use one of the specially devised nasal specula. The heated cautery point buries itself in the tissues, and its detachment is often followed by bleeding, generally insignificant.

In this respect it is superior to the cold wire snare. With the latter, hæmorrhage, very slight at first, is apt to be considerable in the course of a few hours. This seems to me to have been especially noticeable since the introduction of cocaine. Moreover, cocaine sometimes shrinks the tissues to such a degree as to greatly increase the difficulty of applying the snare. It may be suggested that cocaine might be used *after* the adjustment of the loop, but in that case, the first steps of the operation often being the most painful, one might as well dispense with the anæsthetic altogether. When the bone has become involved the cold wire snare will frequently answer every purpose, but in some cases the saw, the nasal trephine, and the various forms of surgical drill will do the work more quickly and with but little if any more pain.

In this brief review it has been impossible to mention all the therapeutic resources at our command. My object has been merely to suggest the general principles and a few of the details which guide me in my own practice.

In conclusion, I would speak a word of caution regarding the indiscriminate boring, sawing, and cutting of the nasal passages now in vogue. It is not my purpose to decry intranasal surgery. On the contrary, it is my firm conviction that the most brilliant results may be expected from a judicious resort to surgical expedients in suitable cases, but it has been my misfortune to see irreparable damage done and the most serious risks assumed in the reckless use of certain engines of destruction recently placed at our disposal. What, then, are the indications for surgical intervention in intranasal disease? The answer comes naturally enough when we recall to mind the functions of the nose. Its primary and most important function is respiratory; therefore any obstacle in the nasal passage which compels breathing through the mouth must be removed. Secondly, it is the organ of olfaction, and the sense of smell is not infrequently impaired by conditions which demand surgical treatment. Furthermore, in a limited number of cases, remote disturbances, reflex neuroses, may result from conditions which may not abolish or apparently disturb these special functions. Here also surgery may be our only resource. Finally, a neoplasm, a deformity, or a hypertrophy may encroach upon the nasal passage, but perhaps not enough to seriously or consciously incommode the patient. The secretions are retained and act as irritants to the mucous membrane. In such case nasal drainage must be restored by surgical measures. In many cases these indications are unmistakably clear. In others we may be able to decide upon the best mode of treatment only after the most careful study. The present tendency in nasal therapeutics is certainly in the direction of "pernicious activity," and it seems to me that the final condition of a large proportion

* "New York Medical Journal," Oct. 20, 1888.

of cases subjected to modern methods is, if anything, worse after they have escaped our hands. It is surprising with what comfort some people wear their crooked noses until the inquisitive rhinologist makes his ingenious pathological discovery. Every septum that is bent or thickened does not need to be planed down or straightened. Every turbinated body that is enlarged does not need to be snared or cauterized. If the temptation to meddle with them is too strong to be resisted, milder measures may perhaps avail with more comfort to our patients and greater credit to ourselves.

No. 20 WEST THIRTY-FIRST STREET.

PARING AND SUTURE CLAMP FORCEPS.

By EDMOND V. JOYE, M. D.,
ATLANTA, GA.

WHEN operating for vesico-vaginal fistula I have often been annoyed and delayed by the difficulty of keeping the tissue tense while paring and suturing. To overcome this difficulty I have devised, and caused to be made by George Tiemann & Co., New York, the following instrument, which seems to meet all indications for operation for simple vesico-vaginal fistula and other operations upon the female genitals, and renders the operations comparatively simple and easy, reducing the time of their performance more than two thirds. The instrument consists of two blades, each nine inches and a half long, which are crossed and

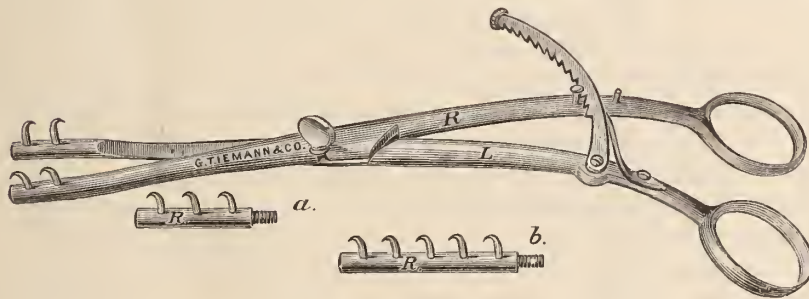


FIG. 1.

locked similarly to the Hodge forceps. One inch of the extremity of each blade is made round, into which are inserted two hooks, three eighths of an inch apart. The hooks are sharp and small at the free end, and thick where they enter the blade, so made to avoid tearing out easily. The shanks, four inches long, bear the screw lock of the Hodge forceps. The handles are five inches and a half long, slightly curved downward, in order to be out of the way of the operator, with a ratchet to hold the blades together, the rotation of the tissue hooked up having a constant tendency to extend the blades. The right-hand blade is marked with an R on the handle, and the left hand blade with an L. In the end of each blade is a female screw. Each blade is provided with two extra blocks, one an inch long, made round, into which are inserted three hooks equidistant, and has a male screw on one end and a female screw on the other end. The other block is an inch and three fourths long, is also round, has inserted five hooks

equidistant, and has a male screw on one end. The hooks of the extra blocks are exactly like those on the main blade. The blocks are marked with the letters R and L to indicate to which blade they belong. These extra blocks are to be screwed on to the main blades whenever the operator desires to increase the capacity of the instrument, making the instrument to have, at the option of the operator, either two, five, seven, or ten hooks on each blade, respectively, thus giving it a capacity of meeting many and varied indications. When performing any of the operations hereinafter mentioned the operator should notice the amount of tissue necessary to be pared, and should arrange the instrument to meet the needs of each individual case by screwing on to the main blades the blocks that will furnish hooks sufficient for him to hold, pare, and suture the extent of tissue necessary to overcome the existing difficulty. The whole instrument is made as light as is consistent with strength and durability. Fig. 1 represents the instrument with two permanent hooks on the main blades, and the extra blocks, of three and five hooks, respectively, which can be screwed on to the main blades as desired. Fig. 2 represents the application of the instrument. A shows the manner of hooking the blades into the tissue. B shows the manner of rotating the blades after being hooked into the tissue.

The operation for simple vesico-vaginal fistula is thus performed: The patient is placed in the position recommended by Dr. J. Marion Sims for such an operation. Chloroform is administered, Dr. Sims's duck-bill speculum introduced, and an assistant holds up the right buttock.

The instrument being unlocked, the left-hand blade is passed into the vagina and hooked into the mucous tissue on the right side* of the fistula, not too near the edge, and rotated from left to right, thus bringing the lock up with the points of the hooks looking toward the right side; and, as the screw of the lock is upon the top of the blade, the handle is held down and the right-hand blade is then passed in over the other, and the hooks are hooked into the left side of the fistula; it is then rotated

from right to left, and brought above and across the left-hand blade. The blades are now locked and the handles brought together and fixed by the ratchet. The fistula is thus firmly held, with its edges everted. The next step is to pare the edges, which is best done with Dr. Emmet's straight and curved scissors. This accomplished, pass the needles, armed with silver wire, one in front of the first hook, then one between each two adjacent hooks, and, lastly, one on the outside of the last hook. Twist up the sutures and cut them off, unlock the blades, rotate them in the opposite direction from that in which they were passed in and hooked, thus relieving the hooks, withdraw the blades, and the operation is complete. Fig. 3

* Right and left as mentioned in this article have reference to the operator's right and left—viz., the right side of the fistula, the right side of the median line, and the right side of the lacerated perineum mean on the operator's right as he faces the parts; so with the left; not the patient's right and left.

represents the instrument after having been hooked near the edges of the fistula, rotated and locked, holding the fistula open, to show the sutures. To complete the operation, draw



FIG. 2.

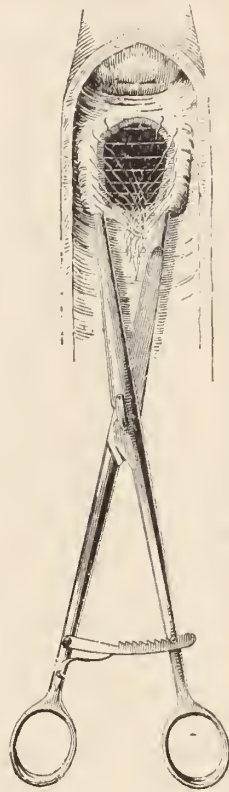


FIG. 3.

the handles together, constricting the fistula, twist up and cut off the sutures, unlock, rotate in the opposite direction from that in which they were applied, and withdraw the blades.

The advantages gained are these: First, by fixing the fistula with the instrument, the operator is enabled to pare the edges at one stroke of the scissors. Second, the blades constricting the pared edges of the fistula furnish considerable support for the passage of the needle, which can be pushed through both sides at once, taking good hold at the same time, and also from this fact the sutures can be better twisted and adjusted. Lastly, the operator has entire control of the parts, for by depressing the handles he elevates the fistula, and during the paring and suturing can bring it clearly into view.

This simple instrument can be used in all operations wherein eversion, elevation, and continuous and perfect adjustment of the tissue are necessary, as in laceration of the perinaeum, colporrhaphy (anterior and posterior), etc. When performing the operation of elytrorrhaphy, the patient is placed in Sims's position and his duck-bill speculum introduced. The operator, determining his line of operation, passes in the left-hand blade of the "paring and suture clamp forceps," hooks it into the anterior wall of the vagina on the right side of the median line, and rotates the blade from left to right. He then passes in the right-hand blade, over the one already in position, hooks it into the anterior wall of the vagina on the left side, at the same distance from the median

line, and rotates the blade from right to left. The right-hand blade is then brought down upon and across the left-hand blade and locked. The operator can now put the tissue between the blades upon the stretch by separating the handles. He can then bring the mucous membrane so stretched clearly into view by depressing the handles, and is thus enabled to readily cut away or freshen the mucous membrane in any given direction, as in Sims's V-shaped operation for procidentia, apex to vulva, base to os uteri, or Emmet's operation for procidentia. The three points, one in front of the os uteri and the two lateral ones, are easily located and freshened while the tissue is firmly held by the forceps; or, as is suggested by Mundé, all the intervening tissue between the blades can be freshened or denuded and the sutures passed and twisted up. The operator having entire control of the parts, by elevating or depressing the handles of the forceps the blades giving support to the tissue allows him to pass in the needles, armed with sutures, more accurately. The operation is completed by drawing the handles of the forceps together, thus bringing the freshened surfaces into accurate and perfect contact, without any traction upon the sutures whatsoever. The sutures are then drawn up, twisted and cut off, the blades are unlocked and each is rotated in the opposite direction from that in which it was applied, unhooked, and withdrawn.

Emmet's, Mundé's, and Stoltz's operations for cystocele can be greatly facilitated by the use of this instrument; also like operations on the posterior vaginal wall. Emmet's operation for urethrocele is thus performed with the "paring and suture clamp forceps": Sims's speculum is introduced; the left-hand blade is passed into the vagina and hooked into the anterior wall on the right side, parallel to and an inch and a half from the point where the slit in the urethra is to be made, and rotated from left to right and held in this position. The right-hand blade is then passed in and hooked into the anterior vaginal wall on the left side, at a point immediately opposite to the other blade and at the same distance from the median line, and rotated from right to left, bringing it down to and across the left-hand blade; the blades are locked and the handles separated until the tissue between the blades is placed upon the stretch; the handles are then fixed by the ratchet, a grooved sound is passed into the urethra, and the slit is made just in front of the neck of the bladder. "The hyperplastic mucous urethral membrane is drawn through this slit with a tenaculum, trimmed down until the urethral canal appears free, and its border is sewed by fine silk or catgut sutures to the mucous membrane of the vagina." Should the operator desire to constrict the edges of the slit, he can unlock the blades and unhook them, and rehook them on either side of and near the slit, rotating them as before, and hold the edges firmly everted while stitching the urethral mucous membrane to the mucous membrane of the vagina. He then unlocks the blades and, rotating them in the opposite direction from that in which they were applied, withdraws them. Cystocele in many cases can be overcome by paring the tissue and making two longitudinal wounds in the anterior wall of the vagina, parallel to and on either side of the urethra, extending from either side of the os uteri to the edges of the vulva. These,

when sutured and healed, will form two longitudinal cicatrices, which will give support to the relaxed anterior wall.

The posterior wall can be so treated for proctocele, the wounds to extend from either side of the posterior vaginal pouch to the edges of the vulva, parallel to and on either side of the median line. In procidentia, the paring and suturing of both the anterior and posterior walls of the vagina in the directions mentioned, will form, when healed, four longitudinal cicatrices which will act as four splints, preventing the sinking down of the uterus or the shortening of the antero-posterior diameter of the vagina. The width of the denuded surfaces in any of the operations must be determined by the condition of the case. The paring and suturing can be done very readily with the "paring and suture clamp forceps" manipulated as before described.

In perineorrhaphy, Mundé says: "While denudation is under process, the index and middle finger of the left hand of the assistant who holds the left leg, and the right hand of the other assistant, separate the labia by traction on the sound skin, and enable the operator to see the vaginal canal as he proceeds inward; this traction must be uniform, and is regulated by the operator at will during the whole operation, so as to secure the best possible symmetry of the two halves of the wound, and exactly corresponding points of entrance and exit of the sutures." This traction can be made with this instrument with more uniformity than with the hands of an assistant, and the instrument gives the operator complete control of the parts, both when denuding and when suturing. The instrument is applied in this manner: The left-hand blade is hooked into the sound skin on the right side of the lacerated perinaeum, and rotated from left to right; then the right-hand blade is hooked into the sound skin on the left side of the wound and rotated from right to left. The blades are then locked. The elasticity of the rotated edges causes the handles to be fully extended, and the operator can, by depressing them, draw the sides of the wound tense, and, thus causing the wound to gape at its outer edges, readily bring the tissue at the bottom of the rent to view. The tense condition of the sides allows the operator to pare them with Emmet's flat scissors, kept level with the surface, without any danger to the structures below the mucous membrane. The paring done, the sutures are passed. After this the wound and vagina are thoroughly cleansed. The handles of the instrument are brought together and fixed by the ratchet, which causes the blades to bring the two halves of the freshened wound into close contact and firmly hold them in this position. The operator draws up the sutures one by one and twists them, unlocks the blades, and removes the instrument. There is no traction upon the sutures to bring the edges of the wound together. They are held together by the blades of the instrument, and by so supporting them the operator is enabled to twist up and tighten the sutures with more uniformity than he can possibly do by drawing the wound together by the sutures. Again, when the blades are removed, the strain comes alike upon all the sutures at one and the same time, and greatly diminishes the danger of their tearing out.

Fig. 4 represents the instrument applied as directed to

a lacerated perinaeum, and shows the rent gaping by the action of the instrument, the tissue pared, the sutures passed. To complete the operation, draw the handles of the instrument together, thus bringing the pared edges accurately into position.

When operating for lacerated perinaeum, the operator must adapt the instrument to the length of the rent, using the number of hooks which will thoroughly evert and accurately adjust the tissue after it has been pared and the sutures have been passed. He must be careful to see that the instrument, after being applied as before described, will thoroughly and accurately bring the edges together before he commences the paring. In other words, the operator, after hooking the blades on either side of the rent and everting the edges, locks the blades and draws the handles together. He then readily sees if the edges of the rent are brought into proper and exact apposition throughout its entire length; if they are not, he should notice what the difficulty is and overcome it by unhooking the instrument and reapplying it in such direction as will enable him, by drawing the handles together, to make the edges meet at all points. This done, he extends the blades and proceeds with the operation as before described.



FIG. 4.

HYSTERECTOMY:

REPORT OF A CASE, WITH REMARKS.

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I WAS consulted on December 2, 1888, by Julia H., colored, aged twenty-seven, married, never pregnant; her menstrual flow always normal in quantity, regular and painless. Her symptoms, as related, consisted of great disturbance to digestion, pain and flatulence after eating, most obstinate constipation, dysuria, constant pain, and some tenderness over the lower region of the abdomen.

For the preceding three months, so great had been her distress from these various symptoms, her general health had become seriously impaired, and her weight, formerly 160 pounds, was now reduced to 120 pounds. About five years ago she discovered in the right inguinal region a lump of about the size of an orange. For several years it changed but little; four months ago, however, without any known cause, it was observed to be rapidly enlarging and assuming a more central position;

at times on her turning over in bed the lump seemed to fall from one side to the other. Her general health had been perfect until disturbed by the growth of the tumor. Examination showed the abdomen to be distended to about the size of a six months' pregnancy. The enlargement was most prominent to the right side. The tumor was smooth, globular, hard, inelastic, non-fluctuating, and freely movable—the area of dullness extending from the pubes to the umbilicus, from the right inguinal through the hypogastric to the left inguinal region.

Vaginal examination gave only negative evidence; the cervix was short, conical, and high. Nothing could be felt in either broad ligament. The sound passed four inches forward. Uterine hæmorrhage was not and never had been a feature of the case. In fact, there were no uterine symptoms *per se*. The symptoms were constitutional or remote, of which disturbance to digestion and nutrition was the most pronounced. These, together with the history of the growth and the physical signs, led to a diagnosis of subperitoneal fibroid tumor of the uterus, probably pedunculated. These growths ordinarily give rise to but little disturbance; in this particular case quite the contrary was true. Dependent largely upon her own exertions for support, she contemplated with dread a life of forced indolence, if not invalidism. Fortunately, she fully appreciated what the future had in store for her if the tumor was left undisturbed, and urged upon me its removal.

Considering the case favorable for hysterectomy and one in which the operation was clearly indicated, after most careful preparation of the patient I undertook the operation on December 8th last.

An incision about three inches in length was made in the middle line, the abdominal cavity opened, and the tumor with its surroundings explored. To my gratification, the diagnosis had been surprisingly correct. I found a subperitoneal fibroid of about the size of a child's head, movable, free of adhesions, springing from the upper and posterior aspect of the uterus; the attachment was somewhat pedunculated. The tumor had risen almost entirely out of the pelvis, drawing in its upward growth the uterus and appendages. It did not extend between the folds of the broad ligament, and, as before stated, adhesions were very slight—only one of consequence, that being omental.

The bladder in its relation to the uterus was normal; there was no adhesion of that viscus to the tumor. To complete the picture, the left ovary was found lying well up on the side of the tumor, while the right lay in a mass of adhesions low in the pelvic cavity.

This case presented *in toto* all those supposable conditions which Greig Smith takes as illustrative of a typically simple case for hysterectomy. The operative procedure was so simple it is scarcely worth detailing. Enlarging the incision to one inch above the umbilicus, passing my hand from above under the tumor, with the aid of atmospheric pressure thus obtained I turned the mass out, Dr. Buist now holding it well up out of the cavity.

The left broad ligament with its ovary and tube lay high up on the side of the tumor in a position to be easily embraced with a *serre-nœud*. On the right side affairs were not so simple. The ovary was firmly imbedded in a mass of adhesions, the tube much enlarged; the relations of the appendages of this side were quite different from those of the left side. The right lay too low to be embraced by the wire; fearing too great tension on the ligament would cause it to slip from the grasp of the *serre-nœud*, which accident would certainly be followed by hæmorrhage from the proximal part, I deemed it at least prudent to leave the ovary undisturbed. The greater portion of the tube and broad ligament was doubly ligatured and divided. The left

appendages being held close to the uterus, the wire loop was thrown around the mass, constricting the uterus about at the internal os. The wire was now tightened through Kœberlé's *serre-nœud*. Sponges were packed around the proposed pedicle, and the mass was cut away an inch and a half above the wire. There was no bleeding from the stump; however, the *serre-nœud* was immediately tightened by several turns of the screw. The stump was now trimmed of extra tissue. For want of better pins, two steel knitting needles were passed through the pedicle above the wire. The peritoneal cavity having been well protected, there was no need of irrigation or sponging, which is often done to excess. The pedicle was fixed in the lower angle of the wound. The abdominal wound was closed in the ordinary way down to the stump; here the parietal layer of peritonæum was stitched with interrupted catgut sutures to the peritoneal covering of the stump below the wire. The stump was now treated with a saturated solution of perchloride of iron in glycerin. Iodoform gauze was packed under the clamp and pins to protect the cavity from any discharge from the pedicle. The patient was put to bed, having sustained but little shock. For forty-eight hours she suffered some from traction on the stump. The bladder was very irritable. A little morphine was given hypodermatically.

During the first twenty-four hours the clamp was tightened by a slight turn of the screw. On the second day the temperature was 101.8° F., and this was the highest during the progress of the case. On the seventh day the wound was dressed; everything was dry, sweet, and free from suppuration; the stump looked mummified.

On the day following I was surprised to find the dressing moist with the ichorous pus from the stump. There was no elevation of temperature. Her general condition was excellent. The parts were thoroughly cleansed with bichloride solution, dusted with iodoform, and packed well about with gauze to protect the cavity from contamination. The incision had healed beautifully down to the stump. Owing to the quantity of discharge, the pedicle was cleansed and dressed every day. The *serre nœud* being occasionally tightened, on the twenty-first day after the operation the pedicle separated and the clamp was removed. Upon the separation of the pedicle a funnel-shaped depression an inch and a half deep was left. Through this the ligature applied to the right appendages came away. The hole rapidly filled in by granulation. The subsequent history of the case contains nothing of note. Five weeks after the operation there was a moderate menstrual flow. She recovered rapidly and has continued to improve in health and strength. The tumor weighed six pounds and three quarters. In its center there was a cavity containing about three ounces of clear fluid. I must here express my gratitude to Dr. Buist, Dr. Winn, Dr. Harris, and Dr. Wood, who upon this, as upon many other similar occasions, rendered valuable assistance, and encouraged me by their presence and indorsement.

Since performing this operation it has been my good fortune to observe the methods and results in abdominal surgery of several European operators, but more especially of my distinguished instructor, Dr. Granville Bantock, of London. All his work is characterized by system, simplicity, and dexterity. But it is in hysterectomy for massive fibroids with extensive adhesions and broad pelvic attachments, requiring careful enucleation, that the superior judgment and marvelous skill of this distinguished operator are shown to best advantage.

It is surprising how tolerant the peritoneal cavity is to the presence of large fibroids, even those in which extensive

adhesions are almost certainly known to exist; patients wear their tumors with comparative grace and comfort.

Upon the other hand, in the case here reported, after the rapid growth of the tumor was awakened, its presence caused such distress from obstruction to blood circulation and the channels of nutrition, emaciation was so rapid, and physical pain and mental anxiety were so great, that some active procedure was imperative. True, all these symptoms may be alleviated, but I am convinced this was one of a large class in which total extirpation is the only resort. Yet Mr. Keith's proclamation is in some degree authoritative. He, in a very brief but pregnant communication to the "British Medical Journal," December 10, 1887, says: "I say it deliberately, hysterectomy is an operation that has done more harm than good, and its mortality is out of all proportion to the benefits received by the few."

A word of warning to the rash, a plea for conservatism, is always "vantage ground" chosen by the aged and experienced warrior. To his many successful hysterectomies, as much if not more than to any other operation, Mr. Keith owes his position of pre-eminence. In this same article, above referred to, he indulges in no mean compliment to Apostoli. Was it enthusiasm over electricity rather than aversion to hysterectomy that induced him to utter so condemnatory a speech of an operation which from the point of view of necessity is as justifiable as any major operation?

Carefully study the description of some of Mr. Keith's hysterectomies requiring enucleation, one could never believe he would feel, with H. P. C. Wilson, of Baltimore: "I shrink and have a feeling of terror come over me when I find that I am obliged to perform hysterectomy" ("Trans. of the Am. Gynec. Soc.," 1886).

Now that Apostoli's method is known to be suitable to only a few carefully selected cases, if not absolutely futile in all, and oophorectomy is unreliable and often wholly impracticable, what are we to do for women dying—and they do die—from fibroid tumors?

Greig Smith, basing his conclusions upon the results obtained by Bantock, Thornton, and Tait, regards it a justifiable procedure. Again, the mere fact that these surgeons are constantly doing the operation speaks for their belief in the necessity and faith in results.

In a study of this operation surgeons are still perplexed as to how best to treat the pedicle. We can affirm upon authority that Keith, Bantock, and Hegar have by the extraperitoneal method attained results unequalled by "any one, or any combination of operators by the intraperitoneal method." Notwithstanding this, Keith says: "The principle of extraperitoneal or clamp method may seem to be the better, but on this point experience has made me change my mind."

Granting the *serre-nœud* to be crude and unsurgical, and being fully convinced that some method of safe intraperitoneal treatment will be found, one can not study the results at the Samaritan Hospital and question the superiority of the extraperitoneal treatment over any known intraperitoneal ligation and suture, whether it be simply Schroeder's plan; or after the ingenious method of Dr. Polk, in which, when complete, the stump is intra-abdominal yet extraperi-

toneal; or the combined abdominal and vaginal method, accredited, I believe, to Dr. Mary Dixon Jones; or, later, the interparietal method of Hacker; or, still more recent, the new method of Kelly.

One can with comparative ease graphically describe most surgical operations; a nephrectomy or ligation may be depicted step by step, and, whilst no two operations are exactly alike, their details are very similar. Not so with hysterectomy. Note the vast difference between an ordinary supra-vaginal amputation of the uterus for a non-adherent fibroid and for one growing out in the broad ligaments, rising up into the abdominal cavity, adherent to everything, short at the base, without a pedicle, requiring the elastic ligature and the most difficult enucleation, each step testing the skill, knowledge, and patience of the surgeon. So variable are the complications met with in fibroid growths that the surgeon who attempts their removal by any proscribed plan or principle other than those broad principles upon which all surgical technique is based will find he will often have to abandon his undertaking in despair. Dr. Wylie fully appreciates this when he says: "Each case must be a law unto itself." Experience alone will enable us to cope with the difficulties that are met with.

Without presuming to be in the least critical, I can but remark the sweet simplicity of the case by which Dr. Howard Kelly illustrates his new method of intraperitoneal and extraperitoneal treatment of the stump ("Am. Jour. of Obstet.," April, 1889).

The special features of the operation for which he claims originality are:

1. The last row of interrupted sutures are left long for the purpose of elevating the stump should hæmorrhage occur.
2. The subperitoneal ligation of the uterine arteries as they ascend on the cervix.
3. The important but not original method of closing the abdominal incision about the stump.

"If," says the writer, "the broad ligaments are spread out on the tumor at the side, they are tied off in a double row of ligatures down to the base of the tumor." In my own limited experience and unusual advantages of observing at the Samaritan Hospital, this primary step of freeing the tumor from the folds of the broad ligament which Dr. Kelly treats so lightly is the greatest difficulty and obstacle to the operation. When such a condition is present, enucleation is necessary. A pedicle must be formed; the stump may be from two to four inches in diameter.

Fig. 4 in Dr. Kelly's article is only diagrammatic, of course; quite like the stem of a toad-stool; in no way resembling an ordinary fibroid.

Dr. Kelly treats the stump after Schroeder's plan, except that the last row of sutures approximating the peritonæum are left long. The stump is then held aside while the operator ligates the uterine arteries subperitoneally. Can the surgeon forget that the pathological is but the perversion of the normal; that in so much as the cells and fibrillæ are increased and distorted in the hyperplastic process, just so is the anatomy destroyed?

Given a large, soft fibroid, where are the uterine arteries?

Can it be hoped that one thrust of the needle, one bite of peritonæum, will embrace the artery? Surgery is a science, not a chance shot.

The next step is that of stitching the parietal peritonæum about the stump. This all operators endeavor to do after some fashion, relying, however, upon the clamps and pins to support the pedicle, upon which oftentimes there is great traction. Dr. Kelly relies upon the forceps and sutures to hold the pedicle up. It appears to me that the tension would soon cause the sutures to cut through and the stump, a sloughing mass, to sink down, and that into the peritoneal cavity.

The objections to Dr. Kelly's method are:

1. It is not applicable to a fibroid growing low on the uterus or spreading out in the broad ligaments.
2. Unless the pedicle was unusually long, separation from the parietes would soon occur.
3. The uterine arteries can not be definitely located. In case they were not grasped by the ligature, hæmorrhage would certainly supervene.
4. Should hæmorrhage occur in spite of precautions taken, forcible elevation of the stump would be attended by obvious dangers.
5. The method is so intricate that the operation would necessarily be a prolonged one.

In a communication to the "Am. Jour. of Obstet." from T. J. Crofford, M. D., commenting unfavorably upon this and all other methods now in vogue of doing hysterectomy, that writer reports a case in which he successfully removed the entire uterus, his aim being to "leave no pedicle of uterine tissue, and there is no necessity to fasten the stump anywhere."

I believe he claims originality for this method. It is nothing more than Bardenheuer's modification of Freund's operation, abandoned on account of high mortality. "Thus, step by step, the way was paved for the vaginal method."—*Sutton*.

No one having had the care of an extraperitoneal stump can fail to wish for some improvement. Dr. Polk, by his modification of Bantock's plan, comes nearer solving the problem. Yet in Dr. Dudley's case, treated after Polk's method, there was slight hæmorrhage on the fourth day, and the patient subsequently died.

PRACTICAL SUGGESTIONS ON THE REMOVAL OF FOREIGN BODIES FROM THE EAR, WITH ILLUSTRATIVE CASES.*

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The subject of removal of foreign bodies from the ear acquires its importance from the fact that these cases are frequently met with and that acquaintance with the surgical

anatomy of the external auditory canal and drum-head is absolutely necessary for their proper management. Moreover, the fact that unskillful meddling may at once transform an otherwise comparatively harmless condition into one of great danger calls for a more extensive familiarity with this subject among general practitioners, since to the *family physician first* these patients appeal for relief. To him especially, therefore, these suggestions and illustrations will be offered.

The foreign bodies to be found in the ear may be classified in various ways. For instance, they may be parasitical or non-parasitical; those that do and those that do not swell; animate or inanimate; those produced within the ear or those introduced therein, etc. The brief period of time at our disposal compels me to confine my remarks to the consideration of the removal of foreign bodies of non-parasitical character which have been introduced within the ear. Cases of this kind when first seen, if the foreign body is inanimate, seem simple and without danger, but, improperly interfered with, they become grave in character and difficult of management. If, however, the foreign body is animate—a small bug, for example—its active character and the vulgar superstition of its possible "getting into the brain"—where alone, by the way, a "foreign body" (!) sometimes exists—almost invariably make the case seem from the outset distressing and urgent to an exaggerated degree. One should therefore be upon his guard lest he be either too careless in the former or too hurried in the latter case, yet be alert to the indications of the particular case presenting and active in properly fulfilling them.

CASE I. A Bed-bug in the Cul-de-sac of the Canal; Instillation of Coal-oil followed by Continuous Pain; Removal of the Bug with a Cotton-wool Brush; an Alkaline Wash gives Instant Relief from Pain.—A boiler-maker, aged twenty-four, awoke at 3 o'clock A. M. on June 14, 1888, with a fluttering in his left ear "as if a bug were in it." He instilled into this ear, up-turned, a few drops of "coal-oil," which at once put a stop to the fluttering. The bug failed to come away with the oil, and, having suffered continuous pain in the ear ever since, he applied to me for relief in the afternoon of the same day. His use of "coal-oil" in this manner had proved efficient several years before in removing a bug from his ear.

Examination showed the tissues covered with oil, and a small dark object in the *cul-de-sac* of the canal, which was afterward removed with a cotton-wool brush, the canal then being syringed with a warm, slightly alkaline aqueous solution, affording entire relief from pain. The dark object proved to be a small bed-bug.

CASE II. A "Candle-bug," having flown into the Ear, causes Impaction of Softened Cerumen against the Drum-head; Removal with a Curette and by Syringing.—A locomotive fireman, aged twenty-three years, applied for treatment on June 21, 1888. He stated that he had had a bubbling, snapping sound in his left ear, especially on drinking anything, for the past two days. He had slight deafness and autophonus voice in this ear. All these symptoms had developed suddenly two evenings before while he was firing on his engine. His suspicions that a bug had flown into his ear were stated to his mate, the engineer, who had noticed his deafness on this side.

Examination showed cerumen occluding both canals; in the left one it was soft, and imbedded therein was a dark object. The cerumen was impacted against the drum-head. A portion

* Abstract of a paper read before the Medico-chirurgical Society of St. Louis, September 18, 1888.

of the cerumen was removed with the curette, the remainder by syringing, which brought away the dark object also, a long, black-winged insect, such as is ordinarily called a "candle-bug."

CASE III. *A Gnat in the Ear; Abrasions of the Canal Wall and Drum-head by Probing with a Toothpick; Gentle Syringing.*—A cashier, aged twenty-six years, was seen by me late in the evening of July 8, 1887, when he stated that while he was out driving on the afternoon of the same day a gnat had flown into his right ear. This had distressed him so greatly that he had at once probed the canal with a toothpick covered with a layer of his handkerchief. After finishing his drive he promptly repaired to his family physician, who, noting several wounds in his ear, at once referred him to me. When seen he complained to me of tinnitus and tenderness of the right ear.

Examination showed an abrasion of the posterior and anterior wall at the isthmus of the canal, a wound of the membrana flaccida, and a slight one of the anterior-inferior quadrant of the membrana tympani vibrans. A very small, black, seemingly structureless object seen in the *cul-de-sac* was removed by gentle syringing, and the ear then dried with absorbent cotton-wool. A soothing vulnerary was applied to the abraded spots and a mild purgative administered, no further discomfort being experienced by the patient.

These cases fairly illustrate how insects enter the ear. Oil should not be used to kill or remove such intruders. If the insect is very small, it may sometimes be ejected by forcibly blowing into the canal. If the invaded ear is upturned and filled with warm water, the insect will either at once seek the surface or perish for want of air. In the latter case it may subsequently be removed by syringing, which is the preferable method, or with a cotton-wool brush or curette. A little reflection will show the folly of hurriedly *probing* the ear for the removal of a live insect. Abrasion of the canal and drum-head at least, and very often complete rupture of the latter, is apt to be caused by such a procedure. In many cases the insect will have already escaped from the ear before the remedial attack upon the organ is begun. Should there be any doubt as to the insect still being within the ear, the doubt should first be satisfied by ocular inspection of the canal. If the patient is suffering pain from the *movements* of a live insect in the ear, unnecessary delay would be cruel, and we should at once upturn the canal and fill it with warm water, proceeding as advised above.

CASE IV. *A Clipping of Hair in the Cul-de-sac of the Canal, pressing on the Drum-head, producing Aural and Cerebral Symptoms, with Subacute Catarrh of the Tympanum.*—A clerk, of Jewish parentage, aged sixteen years, applied for treatment on July 24, 1887. He stated that he had had otorrhœa of the left side for two weeks in January, 1887. In April, at one time, he had a spasmodic pain in this ear. After pitching quoits a few days before July 24th he sat down to dinner and was seized with vertigo and headache. At times he had tinnitus. The family physician had been administering internal remedies before referring him to me.

Examination showed evidence of slight catarrhal otitis media; the drum-head was dull, resembling glass covered with condensed moisture; there was not the slightest evidence of former otitis media purulenta. Resting on the floor of the *cul-de-sac* of the canal, extending obliquely inward and upward, and pressing directly against the drum-head, was a clipping of

stiff hair. Removal of this with a cotton-wool brush, slight Politzer inflation of the tympana, and the administration for several days of small doses of mercury, brought about great improvement by July 30th, when the patient was referred to his family physician for tonic treatment.

CASE V. *A Splinter of Wood driven into the Ear of a Locomotive Engineer at a Collision, producing Displacement of Cerumen, and, together with the Concussion, producing Deafness, Pruritus, and Tinnitus Aurium; Much Hair growing from the Tragus, obstructing the Meatus; Removal of Hair and Cerumen with Scissors, Curette, and Syringe.*—A locomotive engineer, aged fifty-four years, was first seen by me on March 18, 1888. On December 20, 1887, in a head-end collision with a freight train, he had remained at his post, and sustained a fracture of the left femur about four inches above the knee, the lower fragment being split into the knee joint. His left eye was injured and his thorax partially crushed, so that respiration was painful, and he had slight paresis of the upper extremities. There were also wounds of the neck, tongue, and upper lip. Previous to the accident no aural affection had been recognized, but ever since he had noticed partial deafness and occasional pruritus in both ears. There was frequent tinnitus in the left, occasional in the right ear; sometimes he felt sharp pains darting from the spine to the ear and other distal points. Hearing for a forty-eight-inch watch, a quarter of an inch, each ear; he heard a very low voice with either ear at fifteen feet. Examination showed a small amount of loosened cerumen, together with a fresh splinter of wood in the left ear; cerumen in the right ear; both meatus and intertragal notches closed by a profuse growth of hair from the tragus. The hair was removed with scissors, cerumen and splinter of wood with curette and syringe, followed by Politzer inflation of the tympana. Internal treatment was instituted, and on March 20th the patient reported no tinnitus aurium since the last visit; his head felt less heavy, and a forty-eight-inch watch was then heard an inch distant by each ear, a gain of 300 per cent. in hearing for the watch. Treatment was continued and the patient was soon discharged greatly improved.

These cases show how a foreign body may be within the ear without the person's knowledge. Whenever one is consulted by a patient with persistent "cerebral" symptoms, such as vertigo, headache, etc., a careful and thorough examination for ear disease should be made, especially if these symptoms develop after any occurrence which may have induced ear disease or caused the impaction against the drum-head of an unsuspected foreign body. It is important to note that small foreign bodies in the ear may produce prominent subjective symptoms, and even actual otitis, by prolonged irritation.

CASE VI. *A Cotton-wool Wad in the Tympanum; the Drum-head lost by Otitis Media Purulenta of nearly Thirteen Years' Duration; Removal of a Polypus Eleven Years before; Removal of the Wad with Probe and Forceps; Cure of the Otorrhœa in Five Months, with an Intercurrent Attack of Scarlatina.*—A school-boy, aged fifteen years, applied for treatment on January 29, 1888. A specialist of this city had removed a polypus from the affected right ear eleven years before, and subsequently treated him for otorrhœa six years. He was then placed under the care of another for a while. After this the patient was creditably treated by the family physician, who saw him at intervals. Upon discovering that a cotton-wool wad had become deeply displaced, he referred the patient to me for subsequent attention. The patient complained of whistling and blowing

tinnitus, deafness, and a mephitic discharge from his right ear. He had no earache.

Examination showed a cotton-wool wad deeply displaced, upward and inward, in the right tympanum. The drum-head was destroyed, except its anterior edge, in which seemed to be imbedded the malleus, its posterior attachments apparently divided long ago. After removal of the wad of cotton-wool with a probe and forceps, the tympanum seemed filled with granulation tissue, pus, and whitish desquamated epithelium. The incus and stapes could not be found. The tip of the promontory was free from granulations. The Eustachian tube was freely pervious. Touching the outer wall of the attic with a cotton-wool brush produced a disagreeable sensation in the right side of the tongue.

Cleansing with peroxide of hydrogen, with local and internal medication varied according to indications, brought about a cessation of the discharge and disappearance of the granulation tissue. On February 3d he heard a forty-eight-inch watch at two inches with the affected ear; hearing for the voice was improving; and the tinnitus had disappeared. In May he contracted scarlatina, and, though he was singularly free from exacerbation of his ear trouble during the attack, yet it was followed by a relapse thereof. Treatment was resumed, and the ear was so far dried and hardened by the latter part of June that he was permitted to visit Europe. He could hear a loud voice at twenty-five feet with the affected ear at this time.

In cases of perforated or lost drum-head a foreign body in the tympanum or attic is a dangerous complication if neglected. In such cases, if the foreign body has reached the inner end of the canal, the syringe, if used at all, must be used with the greatest care, lest the foreign body be driven into the attic or antrum. *En passant*, this advice is apt in cases of cerumen and former otorrhœa. It is better to use some retracting instrument, such as a bent probe or hooked curette, until we have removed the foreign body to a point where it can more readily be seized with the forceps, when we complete its removal with this instrument. Satisfactory illumination of the parts and sight of the foreign body are essential in the performance of this operation.

CASE VII. *Suspected Foreign Body in the Ear; Slight Catarrhal Inflammation; relieved entirely by Treatment.*—A superintendent of a mining company, thirty-six years of age, presented himself for treatment on January 24, 1888. Several days before this he had thrown into his office stove a broken bottle, the crash being followed by a feeling as of a piece of flying glass entering the right ear. He at once unwisely probed his ear with a pin covered with a layer of handkerchief, but brought nothing away. Pressing upward on the lobule of his ear, a feeling of fullness in the ear was felt which had since persisted. He visited two separate physicians, who examined his ear, pronounced it all right, and advised him to let it alone. Upon expressing dissatisfaction with this opinion, the patient was referred by the latter to me, when I also found the canal empty and normal, the drum-head slightly retracted, and somewhat opaque and lusterless. A Politzer inflation of the ear, with mild internal medication, relieved his symptoms permanently.

A patient, his relatives, or his friends, may often insist upon it that a foreign body is in the ear and demand one's interference. Except where there is a live insect moving about in the ear, we should under no circumstances depart from the rule so wisely observed by the two physicians mentioned above: *No matter how positive a patient, his*

relatives, or friends may be that there is a foreign body in his ear, never attempt the removal of such until you have first provided yourself with satisfactory illumination of the canal with a mirror; examine the ear thoroughly by ocular inspection and convince yourself of the presence of a foreign body.

CASE VIII. *A Grain of Corn in the Ear; Harmless until disturbed; forced into the Cul-de-sac of the Canal by shifting of the Patient's Head during Efforts at Extraction; Ear syringed; "Blind Groping" with a Probe; Laceration of the Canal and Rupture of the Drum-head; Removal, under Anæsthesia, with a Hooked Curette and Foreign-body Forceps; Otitis Media Purulenta Consequent on Maltreatment.*—A school-boy, about twelve years of age, put a grain of corn into his right ear in the latter part of August, 1886. Upon his confessing this to his parents, they waited patiently for two weeks for its extrusion by decomposition. They then consulted a surgeon in the nearest town. He informed me recently that he found the foreign body well within the canal, but not against the drum-head. Having satisfactory illumination of the parts, he attempted removal with the angular forceps. He had barely touched it when the boy, feeling slight pain in the tender canal, resisted further interference with the forceps. The parents refused to permit the administration of an anæsthetic, and at their solicitation he endeavored, as a last resort, to syringe it out, but failed, telling them that anæsthesia was absolutely necessary, and wisely declined to treat the case further without it. The patient was taken in a few days to a neighboring State, where two separate physicians attempted removal without anæsthesia. It was stated that "they blindly groped for the corn" with a probe. The patient was then referred by them to a medical practitioner of this city, who, after unsuccessful attempts at removal, requested me to perform the operation at his office, which I did as follows: Chloroform having been administered to the resisting, unwilling patient, examination showed the auricle highly congested; the canal greatly lacerated; traumatic inflammation of the entire cartilaginous canal wall; the tegmen of the canal denuded of soft tissues and lacerated to the bone in places; the membrana flaccida scraped, and the pars vibrans membranæ tympani perforated at its posterior-superior quadrant, causing otitis media purulenta; a foreign body in the *cul-de-sac* of the canal lying against the lower half of the drum-head. By carefully cleansing and drying the parts with a cotton-wool brush, and laying back the ragged edges of the lacerations, a speculum was readily introduced through which the deeper parts as described were seen as well as the foreign body, which seemed to be, as stated, a rounded grain of corn. With a hooked curette the foreign body was gently extracted to the isthmus of the canal, where it was seized with a Sexton foreign-body forceps and readily removed. Hæmorrhage followed, but was easily checked with a stream of hot water. A cotton-wool wad was temporarily inserted, with the expectation of further cleansing the canal and insufflating some vulnerary powder. No further opportunity of examining the case was tendered me, but the medical practitioner afterward informed me that the patient was recovering.

In the "Medical News" for March 1, 1884, page 242, was reported by me, from Dr. Sexton's aural clinic, a case very closely resembling this last one, together with eight others of foreign body in the ear, occurring during my service on the surgical staff of the New York Eye and Ear Infirmary. You will find a comparison of these profitable and interesting. Case VIII, which I have just presented to you, shows how harmlessly a foreign body may remain within the lumen of the meatus, provided it is not interfered with. There is always a drooping of the cartilage of the concha

where it joins that of the canal at its superior and posterior rim; this makes a kind of drop-valve which may retain a foreign body when once introduced within the canal. Often, in such cases, simply drawing the auricle upward and turning it forward will open this valve and permit the foreign body to fall out. If this is unsuccessful, when the head is jarred also, the aural speculum should be introduced, and, under illumination and in sight, the bent end of a probe or a foreign-body hooked eurette should be carefully passed over the foreign body and then depressed beyond, so that the hook or ratchet-like teeth can seize the intruder and draw it out. With very nervous patients and children, should the foreign body become displaced inward toward the isthmus, the patient's head should be held steady by a strong assistant, and a quick, sharp stream of warm water should be directed above or in corkscrew fashion past the foreign body. This can very readily be done if the stream is directed upward as it enters, for the canal is largest at this point where the foreign body lies loosely, as it does, and the stream of water returning below will carry it toward the meatus, whence it must be removed as directed above. If, however, the stream of water is cast directly inward in the axis of the canal, it will do harm only, and drive the foreign body farther toward or to the drum-head. In steady patients a foreign body on the outer side of the isthmus can be more readily removed with the foreign-body forceps, hooked eurette, or bent probe. Whenever the patient is a child or very restless you should not attempt instrumental interference with a foreign body lying near the isthmus unless you are prepared to administer an anæsthetic should your manipulations prove unsuccessful, or the foreign body be forced beyond the isthmus, the narrowest part of the canal, falling into the *cul-de-sac*, since the floor here declines inward. The foreign body will then lie lower in the line of vision and its lowest part will be hidden from sight by the intervening isthmus. It will now rest against the drum-head. Here, then, is a condition of affairs demanding the interference of a *skillful operator only*. No one unfamiliar with the manipulation of instruments in the deeper part of the auditory canal should have the temerity to interfere here except in an emergency, and then by syringing, and that not too forcibly, lest he rupture the drum-head. Should this prove ineffectual to remove the foreign body, the patient should be placed in charge of some practitioner familiar with this operation. If the foreign body is moderate in size and the hooked eurette can be passed a trifle over its upper point without touching the *membrana tympani*, it may be withdrawn thus from the *cul-de-sac*—the most difficult part of the operation—when you should proceed as advised above. If, however, the foreign body is large, or impacted anywhere in the canal, or, as in some cases, can not be passed by a hooked eurette, it must then be seized between the teeth of a Sexton foreign-body forceps and withdrawn, at least as far as the outer side of the isthmus. Skill in the use of this, as of every other instrument, is essential to the development of its advantages, as is illustrated by the failure of some in using the Sexton forceps.*

Every self-reliant physician who has good eyesight, a steady hand, and instruments suitable for illumination of the ear and the performance of this operation, bearing in mind the facts to which I have drawn your attention, should not hesitate to attempt it. *Never introduce any instrument into the ear unless you can see where and how it is acting.* Try to discover the indications in the individual case presenting, determine exactly how you can best meet them, proceed with deliberation and care, and, above all, *hasten slowly*.

THE
PROPHYLAXIS OF RINGWORM OF THE SCALP.*

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It certainly has not escaped the attention of medical men throughout this country that the number of cases of ringworm of the scalp has very much increased during the last decade. While the governments of European countries use all possible exertion to prevent this contagious disease from spreading, we remain apathetic. America even welcomes to her hospitable shores scores of immigrants whose children bear on their heads the unmistakable signs of this disgusting disease.

If we do not heed (perhaps in a spirit of ideal unselfishness) the danger arising therefrom to our families and ourselves, we ought to take into serious consideration at least the deplorable condition to which those children of the poorer classes are reduced. Breathing the stimulating air of this free country, and surrounded by all the blessings of modern civilization, they find themselves prevented, Tantalus-like, from partaking of what is so liberally offered to all the rest. To these children the schools are closed. Whenever they become sick or destitute, admittance into hospitals and charitable public institutions is often refused and always rendered difficult to them, on account of the contagiousness of their scalp disease. In the dispensaries and outdoor departments of hospitals these little patients are rarely so fortunate as to meet with a physician who has the time and inclination to institute a thorough treatment. It is hardly necessary to point out these evils more minutely. They are so glaringly conspicuous that any suggestion of measures by which they might be remedied will be reasonable.

It is the object of this paper to call the attention of the general practitioner, as well as the specialist, to the importance of the prophylaxis of ringworm of the scalp, and to point out a few general measures for the control of the disease wherever it presents itself in public or private practice.

Three points seem to me to deserve special consideration:

First.—It is necessary to make a correct diagnosis of ringworm of the scalp as soon as it comes under observation.

Second.—The treatment of the disease should contain in itself some elements of prophylaxis.

* See "Archives of Otolaryngology," June, 1888, pp. 106 *et seq.*

* Read at the fortieth annual meeting of the American Medical Association, Newport, June 25, 1889.

Third.—Great care should be exercised before pronouncing a patient cured and fit to go back to school or be admitted into an institution.

A wrong diagnosis, a delay in instituting proper treatment, is frequently the cause of epidemics. In examining cases it will be well to begin with a careful inspection of the hair. As is well known, the hair becomes affected very early in ringworm of the scalp, and its changed condition remains pathognomonic throughout the entire course of the disease. The hairs look as if "nibbled" off close to the scalp, the short portions that remain appearing dry and bent or twisted. On closer inspection with a lens, they are observed to be lusterless, more or less swollen or bulged here and there, and on pulling at them they are found to be quite brittle. They may be surrounded with a white pulverulent matter, which is a compound of epithelial *débris* and fungus. The presence of these short broken-off hairs is very characteristic. The changes affecting the scalp may be looked upon as the results of various degrees of irritation produced upon the tissues, either by the presence of the fungus or by medical interference or by both. The intensity of this reaction, as it were, is in no relation to the quantity or quality of the fungus. It varies according to the individual disposition in every case, and conveys to the observer no intimation as to the severity of the disease proper. In some cases there is no irritation at all, or very little. In others (especially in recent cases), small, rounded or irregularly shaped, dull-red patches are present. These patches are spoken of in most of the text-books as "erythematous"; but in reality their color is of a peculiar kind, which may be described as follows: The redness looks as if painted on the surface of the scalp with a material which has penetrated only the superficial layers of the epidermis. If the hair follicles are the special seat of irritation, pustules or small furuncular abscesses will make their appearance. It may finally come to the formation of "kerion"—inflammatory, œdematous, boggy, honey-combed tumors, discharging from the follicular openings a mucoid secretion. Viewing these symptoms of ringworm of the scalp in this light, we can readily understand that the disease may be most likely to assume the character of seborrhœa and eczema, passing through all the different stages, from the dry, slightly scaly variety of the former to the pustular, crusted form of the latter. Eczema and seborrhœa, in fact, frequently coexist with ringworm of the scalp, and render a correct clinical diagnosis very difficult, sometimes impossible.

Cases of ringworm of the scalp which have passed through a high degree of irritation and are nearly cured may exhibit the smooth bald patches like those met with in alopecia areata. In France the opinion is prevalent that there exist two forms of alopecia areata—a contagious and a nervous one. It is impossible (so it is asserted) to make a differential diagnosis between these two forms. All persons affected with alopecia areata are consequently subject to strict regulations recently put in force by order of the French government in all schools and military establishments. The identity of the contagious form of alopecia areata and ringworm of the scalp has not been proved; so much, however, is evident, that we should look upon cases

of alopecia areata, especially when occurring in children, as a possible source of infection and danger to others.

I need not dwell upon the differential diagnosis between ringworm of the scalp and psoriasis or lupus erythematosus, because it commonly offers no difficulties. To mistake a case of favus for ringworm, or *vice versa*, would make but little difference in regard to prophylactic measures.

Microscopical examination is indicated in all doubtful cases. A few hairs and scrapings taken from the border of a suspicious patch are soaked in a mixture of equal parts of water and liquor potassæ and then examined with a magnifying power of about three hundred diameters. It is advisable to look not for the mycelia of *Tricophyton tonsurans*, which, as you know, are often absent from specimens, but for the conidia or spores. These round little bodies, which are generally present in large quantity, are highly refractive, of a uniform size, and frequently arranged in chains. Besides this, their nuclear contents, their double-contoured outline, their tendency to bud, and their non-alteration by ether, are distinctive features. In making a microscopical examination I usually begin by searching the field with a low power for remnants of broken-off hairs and short stumps, because these are most likely to be found invaded by the characteristic spores.

To the use of the microscope we should resort more frequently than we really do. It must, however, be remembered that the absence of the fungus (microscopically demonstrated) has only a relative value, while the presence of the fungus is the positive and scientific proof of the correctness of the clinical diagnosis—ringworm of the scalp.

Widely varying as are the opinions in regard to the treatment of ringworm of the scalp, there exists one point on which most authorities agree. That is the beneficial action of epilation. The rooting out of the diseased hairs acts as an antiseptic, an irritating, and a prophylactic measure. It combines these very desirable qualities, however, only if it is properly executed. If it is done carelessly or left entirely to hands untrained for the purpose, it will work more harm than good. Instead of acting as an antiseptic, it may give rise to numberless little wounds where septic matter may easily enter. Instead of being the ready means of getting rid of a large quantity of infectious material, the latter may be carelessly strewn about and thus brought in contact with the healthy scalps of other children. Instead of properly irritating or, rather, stimulating the deeper layers of the scalp, it finally may produce severe irritation, requiring temporary cessation of the treatment. The manner in which epilation is practiced is furthermore all-important as to the amount of pain caused. While there is "howling and gnashing of teeth" wherever the epilating forceps is used by an inexperienced attendant, there is generally not a tear in the eyes of the children wherever it is done by an expert. A salve of salicylic acid, in a strength of from ten to fifteen per cent., applied the night before is a good help in rendering epilation easy. It still remains, however, a process which is very tedious and takes up too much of the physician's time. In France, where epilation on a large scale was first introduced in 1855, male and female servants are employed, whose whole duty consists in extracting the

hair of those patients affected with vegetable parasitic diseases. I have seen the *modus operandi* of these *épilleurs* and *épilleuses* (as they are called) at the hôpital St.-Louis, Paris, while following the service of Dr. Besnier. It is in the main that described by Bazin. "The epilators are seated, and cause the head of the patient to rest upon their knees. With one hand (generally the right) they hold the forceps as one holds a writing-pen; the other hand is applied to the part about to be epilated, with the thumb and index finger of which they put the skin on the stretch so as to keep it steady. They then extract the hairs, pulling them out in the direction of their axis, and only a small number at a time—two, four, six, or at most a small bundle. It is necessary to avoid epilating too quickly or too gently, there being an intermediate point which one can only arrive at after a little practice." The extraction of the hairs at the edges of the patches should first be effected, and from the edges the epilation should be extended inward toward the center.

Dr. Besnier, the eminent French dermatologist, devotes one clinic every week to the special treatment of out-patients affected with ringworm of the scalp. An *épilleur* is attached to his service and prepares for treatment a large number of scalps every week. The hair pulled out is destroyed, and the forceps, towels, etc., are carefully disinfected after use. The remaining hair is kept closely cut, every two or three days the scalp being carefully clipped with short scissors. There are three *épilleuses* at the "hôpital des enfants malades" and two at the "hôpital Trousseau."

Epilation practiced after this manner has turned out to be a measure not only of great curative but also of high prophylactic value. The extraction of the hair by means of epilating sticks has been recommended by Dr. L. D. Bulkley. It is an excellent means of quickly getting rid of many of the loose and brittle hairs, and, if preceding epilation with the forceps, has proved to be a practical and time-saving measure.

In order to prevent self-inoculation, as well as the infection of others, some physicians keep their patients' scalps soaked with greasy substances containing the antiparasitic remedies, or apply even an impermeable dressing. These measures are liable to cause much undue irritation, which is a great drawback in the treatment of ringworm of the scalp. Salves with pure vaseline as constituents are preferable in this direction. It has been suggested by some authors to apply some of the customary remedies dissolved or suspended in liquor gutta-perchæ or collodion. These substances form an adhering layer when painted on the diseased spots. Though I do not share the popular idea that they will act by choking the parasite, as it were, I think they are very valuable as precautionary measures. Simple tincture of benzoin, I think, is still more reliable in this regard. It can be applied all over the scalp by aid of a soft nail-brush, and dries quickly into a thin film, which keeps much of the infectious material confined to its place. Besides this, it combines the highly antiparasitic quality of alcohol with that of benzoin. I have used with good success a solution of bichloride of mercury in simple tincture

of benzoin (1 to 300) while treating a large number of cases of ringworm of the scalp. The physician should always insist on his little patients' wearing skull-caps made of linen or some other material which can be washed easily. The use of towels, brushes, combs, etc., by the diseased and healthy in common must be strictly prohibited. We should never weary of laying proper stress on this point, and explain it to the parents and relatives of our patients again and again.

When is a child permanently cured of ringworm of the scalp? This question is not easily answered. "When the formerly diseased patches," says Tilbury Fox, "are covered over with fine, downy new hairs, and all vestiges of the texturally altered ones have disappeared, then a cure may be pronounced, and then only; and this point can only be determined by accurate and minute examination by a lens or the microscope." This is very true in cases where the disease has existed in one or a few circumscribed patches. In cases where the disease has been distributed all over the scalp it will be difficult to select hairs and scales for microscopical examination, and the possibility of some slight signs of the disease escaping detection is very great. The only safe way, therefore, will be to keep the persons under observation for two or three months, making from time to time a careful inspection of their scalps. It may be of importance to trace an epidemic of the disease to its original source. I will therefore not forget to mention the well-known fact that some domestic animals—such as horses, cattle, dogs, and rabbits—may communicate ringworm to man. In Germany, as well as in France, there exist some regulations instructing the veterinary surgeons to seclude from military service those horses affected by the disease. That the air under certain conditions may become loaded with the germs of the fungus and thus spread the disease has been asserted by Tilbury Fox, but lacks the confirmation of others. Some of the prophylactic measures mentioned above find a place in the treatment of ringworm of the body, a disease which, in itself not difficult to cure, may give rise to ringworm of the scalp in the same individual or in others.

Now, in conclusion, what can be done to facilitate the carrying out of these general principles in public practice? We need, I think, a special service for the free treatment of vegetable parasitic diseases of the skin in some of the dispensaries of our large cities. This measure, though constituting a preliminary step only, would undoubtedly result in a great many advantages. It would afford a fine opportunity—

First.—For making extempore microscopical examinations for diagnostic purposes.

Second.—For studying the vegetable parasitic diseases of the skin, with a special view to their origin, *genius epidemicus*, and general prophylaxis.

Third.—For practicing epilation on a large scale by trained nurses.

The physicians in charge of these classes, furthermore, would become most competent in regard to all questions of public hygiene in this direction. They could frame rules as to preventing or checking epidemic outbreaks in

schools and public institutions, these rules to be printed and distributed among principals of schools, teachers, and superintendents. They might finally find it necessary to do what at present would meet with but slight approval—ask for interference by the law.

To these clinics, which need be held but once or twice a week, all the patients suffering from ringworm could be referred. To carry out this suggestion would be connected with little expense, which dwindles into nothing when we come to consider the amount of good which would thus be accomplished in the interest of the common welfare.

If ringworm of the scalp has once been introduced into a school or public institution, it generally spreads like fire. It requires the most energetic treatment and untiring efforts on the part of the physician, who generally has to content himself with keeping constantly under control what he is unable to stamp out. Let us therefore recall to memory the old Latin saying:

“Principiis obsta, sero medicina paratur.”

687 LEXINGTON AVENUE.

Supra-clavicular Hernia of the Lung.—Professor Chotel, of Brussels, reports an interesting case of supra-clavicular hernia of the lung occurring in a child of about three years of age. The child came into the hospital for a large cold abscess of the left thigh; this was operated upon by scraping out and subsequent drainage. A short time afterward it was observed that a tumor had formed over the left clavicle, about the size of an orange. The skin covering it was not reddened or discolored. The tumor was not tender; on percussion it gave a tympanic note, and was found to be completely reducible; on auscultation, a soft vesicular murmur was heard, together with somewhat prolonged expiration, indicating the existence of pulmonary emphysema; the tumor was soft to the touch, giving a sensation of false fluctuation, such as is sometimes noticed in white swelling of the knee. It appeared suddenly, and seemed to be likely to increase in size, as whenever the child cried or moved about it became larger. It was situated immediately behind the clavicle, extending into the space between the scapulae; laterally its boundaries were indistinctly marked; it extended upward to about three fingers' breadth above the clavicle. The diagnosis made was that of pulmonary hernia; the only affection with which it could be confounded was localized subcutaneous emphysema, or a serous congenital cyst; it was, however, quite evident, from auscultation and percussion, as well as from the history and the complete reducibility of the tumor, that it must be a pulmonary hernia. The child, when admitted into the hospital, was very thin and weak, and during the treatment of the abscess chloroform was required, which produced a serious amount of syncope, artificial respiration having in consequence to be kept up for some considerable time. Professor Chotel suggests that the energetic movements then made, when the lung was rapidly distended, may have caused it to force its way through the lax connective tissue and the weak and wasted muscles of the supra-clavicular region. The treatment adopted was very simple. Reduction was made, and maintained by means of a piece of card-board well padded and fixed by a spica bandage. In this way a complete cure was obtained. Professor Chotel is not aware of any other case of pulmonary hernia occurring in a child. Indeed, the condition is rare even in adults.”—*Lancet*.

The Hygienic Congress at London.—We learn from the “*Lancet*” that the organization committee of the International Hygienic Congress, to be held in London in 1891, has met, Sir Spencer Wells being chairman and Dr. Corfield one of the secretaries. The committee contains among others the names of the following: Sir Douglas Galton, Professor Frankland, Professor Huxley Lewis, Dr. Thorne Thorne, Dr. Mapother, Dr. Mouat, and Mr. Ernest Hart. This committee will presently be enlarged so as to represent the varied interests of public hygiene, and a preliminary circular is in preparation.

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THE RECOGNITION OF VULVO-VAGINAL INFLAMMATION
IN CHILDREN.

DR. F. SPAETH, of Hamburg, in an interesting article on this subject, published in the “*Münchener medicinische Wochenschrift*” for May 28th, arrives at certain conclusions which are of considerable practical interest, especially from a medico-legal standpoint. He shows that since the discovery of Neisser's gonococcus it has been recognized that many cases of vulvo-vaginal inflammation in children which before would have been set down as of unknown origin, or regarded purely as complications of the acute exanthemata, are really due to specific infection. Fraenkel reported eighty-four cases occurring in 1881 in the Hamburg General Hospital during an epidemic of scarlet fever, but did not seem to recognize the specific character of the discharge, although he constantly found in it a coccus that closely resembled Neisser's. Cseir, who observed a similar epidemic, not only found the specific coccus, but proved that the discharge was gonorrhœal, since it produced the characteristic ophthalmia. Hofmokl has recently confirmed the latter's statements. Spaeth's cases were twenty-one in number, the patients' ages ranging from three to eleven years. In fourteen cases Neisser's coccus was found in the discharge, and in every instance the urethral mucous membrane was involved in the inflammatory process, while in the seven children with non-specific leucorrhœa the urethra was not affected. The latter canal seems to be the favorite seat of the gonococcus; hence the inflammation is most severe and persistent here.

In order to establish the diagnosis of gonorrhœa in little girls it is only necessary to irrigate the vagina thoroughly, then to press a drop of pus from the urethra, and to subject it to microscopical examination. The source of infection it is not easy to discover. In one half of the writer's cases the mother had gonorrhœa. There is no doubt that the epidemics which occur in families and hospitals, in which the disease is frequently regarded as a complication of scarlet fever, when it is merely a concomitant, are due to the use of infected clothing, sponges, *pots de chambre*, or thermometers. Impure connection is a comparatively infrequent cause. This is important in view of the fact that suspicion is sometimes directed toward an innocent man, who may have gonorrhœa at the time when he is accused of assaulting a child. Even if the vulvo-vaginal inflammation in the latter is proved to be specific in character, the probability of the infection being transmitted through one of the above-mentioned media should render a medical witness very cautious about giving a decided opinion as to its exact source in a given instance.

MINOR PARAGRAPHS.

TOBACCO-SMOKING AS A SAFEGUARD AGAINST
INFECTIOUS DISEASE.

At a recent meeting of the Vienna *medizinisches Doctoren-Collegium*, an interesting discussion on tobacco-smoke and diphtheria took place, the impulse toward the discussion having been given by a communication on this subject by Dr. S. Hajek, of Vienna. Induced by the experiments of Tassinari, of Pisa, on the destructive influence of tobacco-smoke on bacteria, Dr. Hajek had made researches in the *Stadtphysikat* of Vienna, in order to determine the proportion of the cases of diphtheria among smokers and among non-smokers. For this purpose he had collected data for the preceding three years, considering all individuals of the male sex upward of twenty-two years of age as smokers. Among all these, three thousand persons had had diphtheria during that time, and the proportion of the smokers to the non-smokers was, on an average, 1 to 2.8. Dr. Hajek, moreover, said that he would discuss this subject more exhaustively in a work to be published shortly, as he was of the opinion that in bacteriological and hygienic questions a certain importance, though a minor one, should be given to statistics. The speaker directed attention to a statistical work by Professor Oser bearing on this subject of the proportion of cases of diseases in men and in women in a certain epidemic of exanthematous typhus. Oser had observed that three times as many women as men were affected by the disease. The explanation of this difference was considered to be that men, in most cases, lived for only a few hours in insanitary dwellings, and thus became infected less easily than women. This difference ought also to be taken into account in collecting the data for diphtheria. The speaker wished, moreover, to emphasize the difficulty of determining the exact number of smokers. Dr. Neudorfer called attention to the fact that a real destroyer of bacteria, pyridine, was present in tobacco-smoke. Dr. Schiff added that in all bacteriological laboratories smoking was forbidden, as the smoke undoubtedly hindered the growth of the cultivated bacteria.

NIGHT TERRORS IN CHILDREN.

DR. G. L. ULMAN, in the "Albany Medical Annals" for June, treats of *pavor nocturnus*, or "night terrors" in young and excitable children. The causes are various, chief among which are some form of vivid impression, violent play, and great hilarity in the evening or the latter part of the day. He condemns all severity of treatment or harshness of voice on the part of the parents. Soothing measures are the best, and in the event of "spells" recurring with some frequency, he has found the bromides useful, to be given shortly before bedtime. Valerian and asafœtida have been of service. "The charming advice of good nature, coupled with time," always meets his expectations admirably.

GUY'S HOSPITAL.

This institution has recently undergone a singular experience in its losses by death. Within about a week of one another there have died an emeritus member, ripe in years and honors and known as a "fashionable" practitioner; also another member, a pale, young enthusiast of a student. Death has touched the two extremes of age and service. The death of the younger man is regrettable from every point of view, as he was at the opening of a career that promised to be both brilliant and useful.

Dr. George Owen Rees, F. R. S., consulting physician to the hospital, died on May 27th, aged eighty-four years. He was a

co-laborer with Dr. Bright, and fifty-three years ago published his work on the analysis of the blood and urine. Dr. Rees was physician extraordinary to the Queen. He entered Guy's as a student in 1829, and retired from active duty there in 1873. He was Lettsomian lecturer in 1850 and Croonian lecturer in 1857, and delivered the Harveian oration in 1869. "He was a veritable Nestor of the profession, in the best sense of the term." Dr. Leonard Charles Wooldridge, also of the staff, died unexpectedly on June 6th, at the age of thirty-two years, after eating an anchovy sandwich. An autopsy revealed congestion and ecchymosis of the stomach and duodenum, and numerous follicular ulcers of the colon, with moderate cardiac dilatation. Death had taken place by syncope. Overwork at the hospital had contributed to this untimely ending of a most promising career. The deceased obtained his membership in the College of Surgeons about ten years ago. His medical degree was granted in 1886. In 1887 he became assistant physician at Guy's. He was a lecturer on physiology, and had assisted in the Local Government Board's scientific work. He was the son-in-law of Sir Edward Sieveking. The "Lancet" speaks of his "rare genius and sleepless industry," and regards him as the most talented of the men of his own immediate period. His father was Leonard Wooldridge, a surgeon of repute at Overton.

BADGES FOR PARISIAN STUDENTS.

THE Parisian students have recently decided to wear certain marks of distinction to denote the courses which they are pursuing. Medical students will wear, on a *boutonnière* of red and black, a little violet band with a skull made of some white metal. Army medical students will wear, on a garnet *boutonnière*, the symbol of health—the rod of Æsculapius in gold. Students of pharmacy will be distinguished by the emblem of pharmacy, a silver shaft encircled by a gold serpent, worn on a green *boutonnière*.

GARROD'S SULPHUR LOZENGE.

AN interesting account of the therapeutics of sulphur has lately appeared in the "Lancet," written by Sir Alfred B. Garrod. Dr. Garrod regards small and long-continued doses the best means of securing the remedial influences of this drug; and he has found that a lozenge containing five grains of sulphur with a grain of cream of tartar meets nearly all the indications calling for a long-continued administration. This lozenge, named the "compound sulphur lozenge," is convenient and not disagreeable in taste; patients can ordinarily be readily induced to persevere in using it for an almost indefinite period. The lozenges have been in use about five years, and are gradually growing in popularity. Dr. Garrod has been informed by one of the makers of medicinal lozenges that he has sold and sent out, in the course of six months, as much as three hundred-weight, or at the rate of 220,000 per annum. Dr. Garrod's experience will at least lead many medical men to test the virtues of sulphur in a range of troubles for which it is at present but rarely employed, more especially if they can have access to a form of lozenge as convenient and free from objection as the one described in his paper. If his experience is repeated in this country in regard to "hepatic colic," a term which covers a multitude of the indigestions, we do not require a prophet to forecast that the lozenge will have here a demand as great as, or greater than, in London. It will probably eventually come into the vest-pocket of a great proportion of our countrymen who eat rapidly, and who expect attacks of "colic" from time to time, without appreciating that they are preventable by a proper mastication of food. In hæmorrhoidal conditions not

suitable for surgical treatment, and in cases of bleeding from the rectum, benefit has been derived from one lozenge every night for weeks or months. It commonly mitigates the pruritus and the whole chain of accompanying symptoms. So far as we have been able to learn, this compound sulphur lozenge has not yet been made in this country, but it is highly probable that it will be laid before the profession in a short time.

SCURVY IN THE RUSSIAN ARMY.

SCURVY having been endemic at some of the garrison towns of Russia, says the "Lancet," an army surgeon, who set himself to the task of locating its causes, has reported that the bad food served to the soldiers will readily explain its existence and increase. He recommends that the army purveyors be discharged and that abattoirs be established in all garrison towns, and that all "superior" flour be excluded from the soldiers' dietary. His scheme for the feeding of the men includes the use of a vegetable soup each day in the following proportions: Twice a week, cabbage soup; twice, potato soup; and one day each, a soup of turnips, peas, and macaroni.

THE STOLIDITY OF THE CHINESE.

ACCORDING to the "Deutsche Medizinal-Zeitung," an English physician residing in China points out that the most characteristic difference between the Chinaman and the Caucasian of Europe lies in the former's lack of nervousness. We in America, who have seen the Chinaman working incessantly in his little laundry, shall find no difficulty in believing the statements of the English physician when he says: "The Chinaman can write all day, he can work all day, he can stand for a whole day in one position, weaving, hammering gold, or cutting ivory, without once being attacked by nervousness. This peculiarity makes itself apparent in early youth. The Chinaman can bear any kind of bodily exercise. Sport and play are to him unnecessary labor. He can sleep anywhere and in any position—amid thundering machines, deafening noises, the cry of children, or the wrangle of grown people; on the ground, in bed, or on a chair." In his own innocent way the Chinaman is almost a Sybarite.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 9, 1889:

DISEASES.	Week ending July 2.		Week ending July 9.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	11	3	15	2
Scarlet fever.....	71	7	54	3
Cerebro-spinal meningitis....	3	3	1	1
Measles.....	88	4	39	3
Diphtheria.....	99	27	84	18

Recent Deaths.—Dr. Stephen Wickes died on June 8th, at Orange, N. J., having had an apoplectic seizure about three weeks before. He was born in 1813 at Jamaica, Long Island. He was educated at Union College, graduating when eighteen years of age. In 1834 he was graduated in medicine at the University of Pennsylvania. He practiced in Troy, N. Y., for several years, being associated with the eminent Dr. Thomas W. Blatchford. In 1852 he made Orange his permanent home, and there continued in practice until a few years ago. He was the author of a "History of Medicine in New Jersey and of its Medical Men from the Settlement of the Province to A. D.

1800," also of a monograph on "Sepulture." He had nearly completed a "History of Newark Mountain," to which he had given much of his attention for twenty-five years. He was the editor of the transactions of his State society from 1861. He was physician to the Memorial Hospital from 1873. He was a presiding elder in the Presbyterian Church and president of the Essex County Bible Society. He was a man of decided character, diligent, thorough, fond of research, and independent and original in his form of expression.

Dr. Philip F. Brakeley, of Belvidere, N. J., died on July 3d, aged seventy-five years. He had been for nearly half a century quite a prominent figure in medical affairs in the northern part of the State, occupying a position not unlike that of that other veteran, the late Dr. William Elmer, in the southern section. Dr. Brakeley was for about forty years the secretary of the Warren County Medical Society. Like Dr. Elmer, who was nearly his peer in years, he was an alumnus of the University of Pennsylvania, medical department, of the class of 1842. His death was ascribable to the advancing disabilities of age, hastened by disease of the heart.

Dr. William Robinson Findley died at Altoona, Pa., on July 5th, in his seventy-ninth year. He was a practitioner in Blair County for about fifty-eight years, and had been a permanent member of the State Medical Society since 1863.

Dr. Edward Tobie died on May 12th, at Buffalo, N. Y., at the age of fifty-eight years. He was one of the elders of the profession, and possessed of most noble traits of character. He had built up a very large practice, and his untimely death was seemingly due to the fact that he never spared himself. He was a graduate of the Geneva Medical College in the year 1855. His death was occasioned by a sudden and overwhelming apoplectic seizure.

Dr. John Jordan Brown, of Mifflinville, Pa., a representative in the last State Legislature, died on June 25th. He was found unconscious in his office and did not rally. He was a graduate of Jefferson Medical College, of the class of 1870.

Dr. Charles Bland Radcliffe, of London, died suddenly on June 18th, of bleeding from a varicosity on the surface of an umbilical hernia of large size and long standing. Dr. Radcliffe was well known for his special labor in the field of neurology, for his writings on convulsive disorders, and for his articles in Reynolds's "System of Medicine." He was one of the physicians of the National Hospital for the Paralyzed and Epileptic, and was formerly attached to the faculty at the Westminster Hospital, both as attending and as consulting physician.

Dr. J. Lewis Smith, Jr., a son of the well-known writer on diseases of children, died at his home in New York, on Monday, the 8th inst. The deceased, who was a young man of much promise, was a graduate of Bellevue Hospital Medical College, of the class of 1884.

The New Hampshire Medical Society.—At the recent annual meeting of this society the following officers were elected for the coming year: Dr. William Child, of New Hampton, president; Dr. Lyman B. How, of Manchester, vice-president; Dr. Granville P. Conn, of Concord, secretary; Dr. Daniel S. Adams, of Manchester, treasurer; and Dr. Thomas Hiland, U. S. N., of Concord, anniversary chairman. The society was incorporated in 1791, and preparations are in progress for a centennial meeting two years hence.

The Hospital of Johns Hopkins University.—Dr. Henry M. Hurd, of Pontiac, Michigan, has been appointed superintendent of the hospital. He is at present the superintendent of the State Asylum for the Insane at Pontiac.

St. Francis's Hospital, Jersey City.—The medical board has elected officers for the ensuing year as follows: President,

Dr. Nathan Gross Bozeman; secretary, Dr. Hamilton Vreeland; enrator, Dr. William Perry Watson.

Change of Address.—Dr. Frederick Peterson, to No. 201 West Fifty-fourth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from June 16 to July 6, 1889:*

By direction of the Acting Secretary of War, the following changes in the stations of officers of the Medical Department are ordered: TEN EYCK, BENJAMIN L., First Lieutenant and Assistant Surgeon (recently appointed), ordered to Fort Leavenworth, Kansas; GARDINER, JOHN DE B. W., Captain and Assistant Surgeon, relieved from duty at Fort Leavenworth, Kansas, and ordered to Fort Reno, Indian Territory; Par. 3, S. O. 132, June 8, 1889, A. G. O., is so amended as to direct WALES, P. G., First Lieutenant and Assistant Surgeon, to report to Fort Huachuca, Arizona, for duty in place of Presidio of San Francisco, Cal.; WYETH, M. C., Captain and Assistant Surgeon, relieved from duty at Fort Huachuca, Arizona, and ordered to Fort McDowell, Arizona; WOODS, LEONARD, First Lieutenant and Assistant Surgeon, relieved from duty at Fort McDowell, Arizona, and ordered to Presidio of San Francisco, Cal. Par. 2, S. O. 138, A. G. O., June 15, 1889.

FORWOOD, WILLIAM H., Major and Surgeon. By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted in S. O. 118, May 22, 1889, from this office, is further extended four months on surgeon's certificate of disability. Par. 14, S. O. 142, A. G. O., Washington, June 20, 1889.

FISHER, WALTER W. R., Captain and Assistant Surgeon. The leave of absence for one month granted by S. O. 30, e. s., Department of California, and extended fifteen days by Par. 3, S. O. 37, e. s., from these headquarters, is further extended fifteen days. Par. 1, S. O. 41, Headquarters Division of the Pacific, San Francisco, Cal., June 12, 1889.

HARRIS, HENRY S. T., First Lieutenant and Assistant Surgeon. By direction of the Acting Secretary of War, leave of absence for two months is granted. Par. 13, S. O. 140, A. G. O., June 18, 1889.

CORSON, J. K., Major and Surgeon. Granted leave of absence for one month, with permission to apply for an extension of one month. Par. 2, S. O. 65, Headquarters Department of the Columbia.

HOFF, JOHN VAN R., Captain and Assistant Surgeon, is relieved from duty at Fort Reno, Indian Territory, and ordered to Fort Riley, Kansas. Par. 6, S. O. 145, A. G. O., Washington, D. C., June 24, 1889.

BACHE, DALLAS, Major and Surgeon, is relieved from duty at Fort Riley, Kansas, and ordered to report to commanding general, Department of the Platte, for duty as Medical Director of that department. Par. 6, S. O. 145, A. G. O., Washington, D. C., June 24, 1889.

WOODRUFF, EZRA, Major and Surgeon, is, by direction of the Secretary of War, relieved from temporary duty at Fort Monroe, Virginia, and will report in person to the commanding officer at Fort Hamilton, N. Y., for duty at that station. Par. 5, S. O. 146, A. G. O., June 25, 1889.

FISHER, WALTER W. R., Captain and Assistant Surgeon. By direction of the Secretary of War, the extension of leave of absence granted in S. O. 41, June 12, 1889, Division of the Pacific, is still further extended fifteen days. Par. 8, S. O. 146, A. G. O., Washington, June 25, 1889.

The leave of absence for one month granted Major J. K. Conson, Surgeon, by Par. 2, S. O. 65, e. s., Department of the Co-

lumbia, is extended one month. Par. 1, S. O. 45, Headquarters Division of the Pacific, June 24, 1889.

Leave of absence for twenty-five days, to commence on or about July 2, 1889, is granted Captain A. R. CHAPIN, Assistant Surgeon. Par. 6, S. O. 145, Division of the Atlantic, June 27, 1889.

GIBSON, R. J., Captain and Assistant Surgeon, reports arrival July 2, 1889, at Camp Lewis, Fisher's Island, New York, in compliance with Par. 5, S. O. 133, Division of the Atlantic, which designated him as medical officer for the encampment (rifle practice) at Fisher's Island, New York.

By direction of the Secretary of War, Captain ANDREW V. CHERBONNIER, Medical Storekeeper, will, in addition to his present duties, take charge of the office and perform the duties of acting assistant medical purveyor in St. Louis, Missouri, during the absence of Captain George T. Beall, Medical Storekeeper. Par. 2, S. O. 151, A. G. O., July 2, 1889.

Leave of absence for one month is granted Captain W. C. GORGAS, Assistant Surgeon, to take effect on the arrival of a medical officer to relieve him. Par. 2, S. O. 84, Headquarters Department of the Missouri, July 3, 1889.

By direction of the Secretary of War, leave of absence for two months is granted Captain GEORGE T. BEALL, Medical Storekeeper. Par. 8, S. O. 148, A. G. O., June 27, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending June 29, 1889:*

BEARDSLEY, GROVE S., Medical Inspector. Granted a year's leave of absence, with permission to leave the United States. FEREBEE, N. M., Surgeon. Detached from special duty at Naval Academy and to await orders.

ROTHGANGER, GEORGE, Assistant Surgeon. Ordered to the Naval Hospital at Mare Island, Cal.

SIEGFRIED, C. A., Surgeon. Detached from the U. S. Steamer Quinnebaug, and to wait orders.

CURTIS, L. W., Passed Assistant Surgeon. Detached from the U. S. Steamer Quinnebaug, and to wait orders.

SMITH, GEORGE T., Assistant Surgeon. Ordered to the Army and Navy Hospital, Hot Springs, Arkansas.

Society Meetings for the Coming Week:

TUESDAY, July 16th: Medical Society of the County of Otsego (annual—Cooperstown), N. Y.

SATURDAY, July 20th: Medical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

SUBLUXATION OF THE HEAD OF THE RADIUS.

133 WEST THIRTY-FOURTH STREET, July 8, 1889.

To the Editor of the New York Medical Journal:

SIR: Answering the letter of Dr. Van Arsdale in your issue of July 5th, please allow me to say that it is a matter of small importance whether my paper brought forward any original ideas. Not knowing of the papers of Moore, Van Santvoord, and Streubel, I made a few simple experiments upon the cadaver, and published the results for what they were worth in your issue of June 22d. The question as to the real nature of the injury had puzzled me, but the experiments were satisfactory.

The specimen presented by Dr. Van Arsdale, as stated in

his letter, did not illustrate any of the points which I made in reference to the movements of the orbicular ligament, and that is why I did not do him "the credit to refer to it."

In answer to the important points in Dr. Van Arsdale's letter, I would say: 1. In spite of the close attachments of muscles to the anterior ligament, the fibers known as the orbicular ligament can slip over the head of the radius while the anterior ligament remains undisturbed. 2. The fact that in many cases the head of the radius can be felt anteriorly displaced does not speak against the theory of interposition, but rather in favor of it, for, the head of the radius being liberated from the loop of the orbicular ligament, the biceps muscle would naturally be expected to displace the head of the radius anteriorly. 3. If Dr. Van Arsdale will try to produce subluxation of the head of the radius while the biceps muscle of the cadaver is put upon the stretch, he will believe with me that the orbicular ligament can not slip over the head of the radius into the joint space except at a moment when the biceps muscle of the patient is relaxed and "off its guard." ROBERT T. MORRIS, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN PRACTICE OF MEDICINE.

Meeting of April 16, 1889.

Dr. R. C. M. PAGE in the Chair.

A Case of Purpura Hæmorrhagica.—Dr. E. A. BRACKLOW presented a patient. Improvement of some duration had been obtained from the administration of sulphate of quinine in acidulous solution, but the old condition had returned sooner or later after every sort of treatment tried. There was associated kidney disease.

Dr. G. R. LOCKWOOD said he had been struck with the uncertainty in various writers as to what really constituted the morbid state present in or with purpura hæmorrhagica. Many spoke only of the essential cases, to the exclusion of those which were symptomatic—*e. g.*, occurring in scarlet fever, etc. Others associated purpura hæmorrhagica with a general cachexia due to poor food, residence in damp cellars, etc., and with swelling of the gums and loosening of the teeth; still others with anemia, enlargement of the liver and spleen, retinal hæmorrhages, and escape of blood on the mucous surfaces. The pathology, symptomatology, and treatment were not well defined, in other words; the literature on the subject, and especially the reports of cases, needed review and original study. The treatment of the condition had been unsatisfactory with the exception of one instance where the faradaic current, used for the first time when the patient was *in extremis*, had brought about recovery. There was one form of the disease not sufficiently recognized. It was common to hear of mild cases which were recovered from in which there were more or less frequent recurrences. But he referred now to instances where hæmorrhages and acute collapse came on very suddenly, the patient dying in profound nervous depression. Thus a soldier, in good health apparently when such an attack had come upon him, had died after an illness of only eighteen hours. In another instance a young lady had been seized with hæmorrhages into the skin, and from the nose, mouth, bowels, uterus, kidney, and stomach; the temperature had risen to 107° F., and after two days of profound nervous depression the patient had died in coma.

Dr. W. S. GOTTREIL said he appreciated the confusion now

existing in the descriptions of purpura as distinguished from purpuric diseases, but thought no very marked distinction needed to be made between them. A first class should be made of cases where hæmorrhages occurred into the skin only (in which also recovery always occurred). In a second class should be placed the severe cases where hæmorrhages from the mucous membranes and internal viscera occurred. But, apart from this, he would have the pathological conditions under which the disease occurred studied in themselves, and named accordingly. The connection was the main thing, since purpura was only a symptom of quite a number of different affections.

The Value of Simulo in Epilepsy.—Dr. M. ALLEN STARR read a report of the results obtained from the employment of tincture of simulo in a number of cases of epilepsy and hysterical epilepsy. His conclusions were that it was without value in hysterical convulsions of every sort, in *petit mal*, and in progressive epilepsy, and that it was not the equal of the bromides in *grand mal*. But, on the other hand, it caused no general disturbance as the bromides sometimes did, and in such cases might be used to replace them as a means of reducing the frequency of real epileptic seizures. If used, he would advise that the dose be increased daily. The chief objection to the employment of the drug in ordinary practice was its expensiveness.

Dr. E. D. FISHER thought the drug worthy of trial. Some had found that if a third of the ordinary dose of the bromides was replaced by simulo, the effect of each drug was much enhanced.

Dr. L. C. GRAY had tried the drug in five different cases, both in combination and by itself. His experience with it had resulted in his entirely abandoning its use. Any change of treatment was followed by temporary improvement in epilepsy, but a value of this sort simulo had in common with too many other agents to be recognized as having a specific action.

The Significance of the Crepitant Râle.—Dr. FRANK W. JACKSON read a paper with this title, in which he had compiled opinions from various standard writers to the effect that the crepitant râle did not occur in pneumonia alone. There was a difference in the definition of the râle by various writers, but all practically followed either Laennec or Walshe. Laennec had located the origin of the sound in the pulmonary cells, believing it due to the breaking of bubbles of air forming in a serous exudation, and described it as a moist sound. Walshe described it as a dry crackling, comparable to the breaking of a fine tissue, and probably produced when stiffened air cells were distended. The reader believed both moist and dry crepitant râles occurred, having noticed them sometimes in the same patient on different examinations. More recent foreign writers made it due to a variety of possible conditions (thus to the tearing loose of the walls of the vesicles from a fluid, beginning œdema of the lung, pleuritic adhesions, collapse of air vesicles, œdema of the pleura dependent on old lung diseases, and the first stage of pulmonary apoplexy), as well as to the incipient stage of pneumonia. Dr. Leaming, in this country, had sought to enforce the view that all râles were of pleuritic origin, basing his belief on the finding of fibrin on the pleura, in cases where râles had been heard a few hours before death, and when the lung was completely solidified. He considered it a valuable sign of pneumonia and phthisis, but not as a positive indication of either. Dr. Loomis made the crepitant râle due to pleuritis; Dr. Delafield made it a friction sound; Dr. Roosevelt, a sound due most commonly, and perhaps always, to pleuritic rubbing, and occurring in pneumonia, phthisis, and dry pleurisy.

The speaker had a few observations of his own to offer from a strictly clinical point of view. The crepitant râle, in his experience, was not always persistent; that is, it often disap-

peared and then appeared again, from moment to moment. The very fine and dry crackling râles, coming in a gust or shower, were but rarely heard. The crepitant râle was heard in dry pleurisy, in pneumonia, and in phthisis, and in no case could one tell by the râle alone whether the case was one of pneumonia or not. Many patients whose only symptom was pain in the chest had crepitant râles, and this he believed to be due to dry pleurisy alone or to pleuritic adhesions. In œdema he believed the râle was subcrepitant of a very liquid character. There seemed to him a strong probability that the crepitant râle common to pneumonia, phthisis, and dry pleurisy was due to a pleuritic exudation.

His conclusions were that the crepitant râle was not pathognomonic of pneumonia; that it was heard also in phthisis, in dry pleurisy, and in broncho-pneumonia; that there was a strong probability that it was almost always due to pleuritic inflammation; and that the question as to whether it was also heard in œdema of the lung and in pulmonary apoplexy was as yet unsettled.

Dr. J. W. ROOSEVELT thought that among the many loose statements made in explanation of physical signs the loosest had been concerned with the causation of the crepitant râle. We were not yet in a position to say what the cause really was, in his opinion. Some had said that this râle was produced in the air vesicles; others, that it could not be there produced because the air did not move in these spaces. The latter statement he must absolutely deny. The inflation of lung tissue produced by even a small motion of the chest had been proved to the eye experimentally. We were told that the pleural surfaces alone produced this sound. Others said that crepitant râles could not arise in a solidified lung. He saw no reason why they should not be produced in the latter way. We overlooked the fact that a solidified lung moved, or else the pleura did not move with the chest. The solidified lung was capable of expansion, if only by the filling of the bronchi, as could be shown experimentally. Some spoke of it as a curious thing that the crepitant râle was heard only near the seat of pain, but it was equally curious that the pain did not correspond to the seat of the pleurisy and was located sometimes even in the other lung. Sometimes crepitant and subcrepitant râles were heard just before death, and the autopsy showed no pleurisy present. On the other hand, he could say from personal observation that these râles could sometimes be heard in cases of pure pleurisy. It was also heard in pulmonary œdema. If the pleura could produce the sound, why not also a solidified lung? His conclusion, therefore, was that the crepitant râle was valuable as a sign of either pleurisy or pneumonia only in connection with other symptoms.

Dr. W. W. VAN VALZAH agreed that the crepitant râle might appear in each of the several conditions named. A simple means of separating those cases where the source of the râle was in the pleura from those where it was in the lung itself was to fix the lower third of the chest-wall by throwing the arms about the patient's waist, and then having him breathe and cough. If, then, the stethoscope still revealed the existence of a râle, the source of the sound was evidently pulmonic. If, on the other hand, the pain on breathing and the râle were both suspended by thus clasping the chest, both had evidently come from a pleural affection. In pleuritic râles the extent over which they were heard was small, moreover. They were comparatively loud and harsh and the amount of sound varied much. In pneumonia the râle not of pleural origin was comparatively a faint sound, deep-seated, and varying little in amount.

The CHAIRMAN believed that the real crepitant râle originated in the lung, but might be imitated as a result of conditions in the pleura and bronchi, and in some cases indistinguishably.

Book Notices.

A Treatise on the Diseases of Women, for the use of Students and Practitioners. By ALEXANDER J. C. SKENE, M. D., etc. New York: D. Appleton and Company, 1888. Pp. xiv+966.

DR. SKENE'S well-earned reputation as one of the leading gynæcologists of America is in itself enough to insure a favorable reception of his book, and this will be the more heartily given after the work has been examined. Like the books published by Emmet and Sims, it voices the author's own ideas and methods of practice—deductions from his own observations to the almost entire exclusion of those of other authorities. All, or almost all, of the many mooted points with which the gynæcology of to-day bristles are not discussed by the author, whose aim has been to present the practical part of gynæcological surgery in brief, concise descriptions of the various disorders of the female sexual organs and of the modes of treatment which he himself follows, rather than a summary of all the methods now in vogue. Illustrative histories of cases are given with a view to the better explanation of details of treatment, as well as of the different phases of the same disease.

A large portion of the work is devoted to the diseases of the bladder and urethra, as one might fancy would be the case, for Dr. Skene has already contributed much to the literature of that subject. Some controversial matter has crept into this section of the work, but its presence is not manifest to a disagreeable extent.

The work shows that its author is nothing if not original, and is replete with practical suggestions and details of operative technique by which other eminent authorities might profit in many instances. The treatment of uterine myo-fibroma by the galvanic current is supported, and some stress is laid upon abnormal invagination of the cervix as a cause of uterine displacements. The chapters relating to the use and abuse of pessaries are most admirable, if one fault, to which subsequent attention will be paid, is ignored. The proper application of these much-abused instruments in the treatment of uterine displacements is clearly defined, as are the injurious effects of careless or ignorant use of the same.

The book will be welcomed by the practitioner of gynæcological experience as a valuable addition to his reference library, but it will be of but little real assistance to the student or tyro, as the fault just mentioned is apparent throughout its extent. This fault consists in the almost absolute neglect of mentioning the contra-indications to the use of the sound as a uterine retractor, and to the performance of operations involving the uterus or the circumjacent pelvic tissues. In gynæcological surgery pre-eminently should care be taken to prepare the patient for operation, and to postpone it until such time as may be required for preparation has elapsed and all evidences of acute pelvic inflammation have disappeared. Yet the only reference to this all-important subject is to be found in the statement, frequently recurring in the histories of the cases cited, that the patient was treated until she was in a condition which was suitable for operation, with no description of that condition and no caution against operating at any time or in any case. To the expert this is of no importance, but to the callow practitioner, who will blindly follow his text-book's directions, it may mean invariable pelvic peritonitis as a complication in his uterine cases. Again, ulceration of the vaginal and uterine walls resulting from the pressure of a neglected or ill-fitting pessary is very uncommon in comparison with the evil effects of the use of even perfectly fitting pessaries when the uterine ligaments are the seat of inflammation, or the enlarged, prolapsed ovary is cruelly pressed upon by the same misplaced instrument.

In general, the work is a concise exposition of the gynecological surgery of to-day, and, though it treats its subject only from the standpoint of its author's experience and belief, it will well repay him who reads it carefully. Dr. Skene's teachings may be at variance with those of equally eminent authorities, but he adduces enough of clinical proof in support of his methods; and the quality of a pudding is best ascertained by an actual ingestion test, not by theoretical criticism of the recipe after which it had been constructed.

The book, in typography and illustrations, is a credit to the publishers. Numerous woodcuts and several colored plates illustrate the work and testify in regard to the ability of the artist.

Clinical Lectures on Albuminuria. By THOMAS GRAINGER STEWART, M. D. Edin., Fellow of the Royal College of Physicians of Edinburgh, etc. New York: William Wood & Co., 1888. Pp. xi-250.

THIS work is worthy of serious attention. The author details the results of personal observations apparently made with care. However much we may venture to doubt many of his conclusions, we can not overlook the importance of the facts presented. Unfortunately, the tables of statistics are by no means convincing. It is a great pity that more detail is not given. Dr. Stewart first tabulates the incidence of albuminuria in 505 "presumably healthy people," and finds albumin present in 166. Of these, the quantity was sufficient to be shown with cold nitric acid in 76, but in 90 picric acid only showed the reaction. This is a very large percentage, and certainly makes one think that more cases should be studied. Turning to page 37, we find a table of 450 patients with various disorders, of whom 136 showed albumin, 99 with nitric acid and 37 with picric acid. The author says that at first one is surprised to find 32.2 per cent. of presumably healthy people with albuminuria, while only 30.2 per cent. of the patients had it, but calls attention to the fact that of the former 76 and of the latter 99 showed albumin with nitric acid, and that therefore a larger proportion of the sick show a relatively larger quantity of albumin than the well. We find, however, in the 99 cases among the sick whose urine reacted with nitric acid, 43 of Bright's disease, 7 of probable Bright's disease, and 9 which were "accidental." Paying no attention to the latter, we have among 450 sick 50 cases of Bright's disease with enough albumin to react with nitric acid. Now, it seems fair to subtract these from the total, and then compare the remaining cases with those in the first table. We have among the healthy 76 in 505 whose urine reacted to nitric acid, while among the sick we have 49 in 400. The rather startling result is that 15.5 per cent. of persons in health have albuminuria, while among the sick only 12.25 per cent. (exclusive of those with Bright's disease) present this symptom! The number of cases examined is far too small. Another criticism which we must make on these tables is that their utility is much reduced by the omission of any statement of the whole number of cases examined in each class. When Dr. Stewart says that nervous affections do not seem a frequent cause of albuminuria, since he finds only 6 among 450 patients, it would be more valuable to us if he had stated the total number of nervous cases examined. The author continually compares his classes with the whole series of 450, instead of giving the numbers in each class in which there was or was not albuminuria. Two things we would note regarding these tables—first, that not five hundred and five, but at least five thousand cases should be examined before accepting Dr. Stewart's percentage results; second, that among the sick no tables of value can be made unless the number of cases in each class is considered as well as the whole number.

The author considers picric acid and cold nitric acid the most satisfactory qualitative tests for albumin, and seems to think the latter of more clinical value than the former. For quantitative estimation, Esbach's method is stated to be the best for clinical use.

The book, as a whole, is very interesting. The subject is carefully and clearly studied, and the various views of different authorities are fairly presented.

Lectures to Practitioners on the Diseases of the Kidney amenable to Surgical Treatment. By DAVID NEWMAN, M. D., Surgeon to the Western Infirmary (Outdoor Department); Pathologist to and Lecturer on Pathology at the Glasgow Royal Infirmary, etc. London: Longmans, Green, & Co., 1888. Pp. xv-472.

THE author has made a careful study of his subject and his book is interesting. It is to be regretted that he has not added a complete list of the authors and papers consulted. There is much to praise in the clearness of his style and the completeness of his descriptions; but we can hardly be satisfied with the paragraphs upon diagnosis. Like so many others, Dr. Newman first states that there is a close resemblance between various diseases, and then proceeds to give descriptions of symptoms which are so absolutely unlike that one wonders how he or any one else could ever make an error, or indeed see any similarity in the disorders. Now, it is not absolutely clear cases which usually cause error. In his description of renal swelling (page 97 *et seq.*) almost every paragraph contains the word "generally." This is well enough, but for the diagnosis of difficult cases we can not rely upon generalities; we want to know what unusual conditions may exist and how they are to be interpreted. We do not "generally" mistake either ascites or an ovarian cyst for a renal tumor or *vice versa*, and when doubt exists as to whether one or another of these is present, we have to deal with conditions which resemble each other, not with those which do not.

The book, except for the points noted, is very clear and good. Those who have much to do with surgical cases will find it worthy of study. The pathological descriptions are good. The indications for operations are clearly and rationally given. Rather elaborate statistics are tabulated showing the results of operations as well as other matters.

Bright's Disease of the Kidney. By ALFRED L. LOOMIS, M. D., LL. D., Professor of Pathology and Practice of Medicine, New York University Medical College, etc. Detroit: George S. Davis, 1888. Pp. 117. ["The Physicians' Leisure Library."]

IN this book Dr. Loomis sets forth his views upon these important subjects in a manner which is disappointing. Although the style seems clear, yet one finds some difficulty in ascertaining exactly what the author means to say. The pathological anatomy given will hardly be accepted by most pathologists. The symptomatology is well handled. The causes of dropsy and albuminuria are not made plainer than has been done by earlier authors. The treatment indicated seems most rational and is worthy of the author. On the whole, the book can not be considered as a very valuable contribution to the literature of the subject.

GENERAL LITERARY NOTES.

AMONG recent foreign publications we note the following:
 ASSELIN & HOUZEAU, Paris.—P. Tillaux, "Traité de chirurgie clinique." Vol. II. 2d fasc. (6fr.)—D. Labbé, "De Pozone. Aperçu physiologique et thérapeutique." (1fr. 50.)

J. B. BAILLIÈRE & FILS, Paris.—H. Thompson, "Leçons élipiques sur les maladies des voies urinaires." Transl. by Rôbert Jamin. (3fr.) — Borry, "De l'enclavement de l'iris consécutif à l'extraction de la cataracte, principalement d'après la méthode française (historique), pathogénie, prophylaxie." (3fr.) — E. Gautretet, "Urines (dépôts, sédiments, calculs). Application de l'analyse urologique à la seméiologie médicale, avec une préface de Leorché." (6fr.)

O. BERTHIER, Paris.—L. N. Worthington, "Chimie inorganique et organique, botanique, zoologie."

CH. BREHM, Montpellier.—A. Jaumes, "La déclaration des causes de décès et des maladies épidémiques."

H. BRIAND, Angers.—G. Dupont, "De la perte de poids que subissent les cadavres dans l'air atmosphérique."

BRISTIND, Havre.—Le Gad, "Observations d'une épidémie de variole jugulée par les revaccinations en masse."

CERF & FILS, Versailles.—S. Y. Ménard, "Note sur la maladie des chiens."

A. COCCOZ, Paris.—L. A. Demelin, "Documents pour servir à l'histoire anatomique et clinique du segment inférieur de l'utérus pendant la grossesse, l'accouchement et les suites de couches." (3fr. 50.)

A. DELAHAYE & BABÉ, Paris.—B. J. Narieh, "À propos d'une opération de céphalotripsie sans broiement chez une femme à bassin oblique-ovulaire.—Petite modification dans le cranioclaste."

E. DESHAYS, Rouen.—R. Brunon, "Réflexions à propos d'un nouveau cas de myosite infectieuse primitive."

O. DOIN, Paris.—L. Tripier, "Guide pratique de petite chirurgie." — Charlier, "Traitement spécifique de la phthisie pulmonaire par le cuivre." (1fr. 75.) — J. Ronvier, "Hygiène de la première enfance." — B. J. Narieh, "Expériences avec le cranioclaste de Carl Braun (de Vienne) dans les bassins très rétrécis et proposition d'un nouveau procédé d'extraction du fœtus avec le même instrument."

BUREAUX DE L'ENCÉPHALE, Paris.—Rouillard, "Les amnésies (valeur séméiologique, étiologie, classification)." — H. Savage, "Des troubles d'esprit développés à l'occasion de fiançailles." Transl. by V. Paraut.

BUREAU DU JOURNAL DE MÉDECINE DE PARIS, Paris.—J. Jasenriez, "Quelques considérations sur les stations climatiques françaises."

LECROSNIER & BABÉ, Paris.—J. Renaut, "Le milieu intérieur et le tissu conjonctif lâche et modelé." — G. Thermes, "Traité élémentaire d'hygiène et de thérapeutique de l'hystérie." — De Wecker and E. Landolt, "Traité complet d'ophtalmologie." Vol. iv, 3d fascic. (20fr.) — G. Wickham, "Appareils de Wickham pour le traitement des hernies." (1fr.)

F. LEVÉ, Paris.—J. Morice, "Du bain prolongé. Note sur un cas de phosphaturie chez un névropathe arthritique."

G. MASSON, Paris.—G. J. Bull, "Lunettes et pince-nez." — Ch. Monod, "Compte rendu des travaux de la Société de chirurgie pendant l'année 1888."

P. SAVY, Paris.—L. Ranvier, "Traité technique d'histologie." (18fr.)

STEINHEIL, Paris.—V. Fremont, "Vichy; indications et contre-indications." — P. Balme, "De l'hypertrophie des amygdales (palatine, pharyngienne, linguale)." — D. Courtade, "Contribution à l'étude thérapeutique de la digitale dans les affections organiques du cœur." — H. Gillet, "De l'embrocardie ou rythme fœtal des bruits du cœur." — F. Regnault, "Des altérations crâniennes dans le rachitisme." — L. Riocreux, "Syphilis. Hérité paternelle." — A. Ruault, "Contribution à la pathologie de la quatrième amygdale (amygdale de la langue)." — A. Ruault, "Le spasme glottique d'origine nasale."

VAILLANT-CARMANN, Liège.—Lenger, "De la tarsectomie postérieure dans les pieds-bots varus osseux."

J. F. BERGMANN, Wiesbaden.—H. Nebel, "Bewegungskuren mittelst schwedischer Heilgymnastik und Massage." — M. Nitze, "Lehrbuch der Kystoskopie." — O. Becker and W. Hess, "Bericht von 7. period. internat. Ophthalmologenkongress 1888." — F. Siebenmann, "Die Schimmelpilzkrankheiten des menschlichen Ohres." — R. Frommel, "Über die Entwickelung der Plazenta von *Myotis myotis*."

BREITKOPF & HÄRTEL, Leipzig.—H. Schmidtborn, "Ueber Asthma

nervosum." — W. A. Freund, "Über Akromegalic." — C. Krafft, "Behandlung der durch Perforation des Wurmfortsatzes hervorge-rufenen Perityphlitis stercoralis."

DORN'SCHE BUCHHANDLUNG, Ravensburg.—J. L. A. Koch, "Zweifalten, kurzgefasster Leitfaden der Psychiatric."

FERDINAND ENKE, Stuttgart.—Rosenbach, "Der Hospitalbrand." — Rafaël Coën, "Spezielle Therapie des Stammelus und der verwandten Sprechstörungen." — F. Hersing, "Kompendium der Augenheilkunde."

G. FISCHER, Jena.—Ziegler and Nauwerck, "Beiträge zur pathologische Anatomie und zur allgemeinen Pathologie." Vol. iii.

GNEVKOW & v. GELLHORN, Kiel.—J. Hahn, "Ueber Transplantation ungestielter Hautlappen nach Wolfe."

A. HIRSCHWALD, Berlin.—O. Berkhan, "Ueber Störungen der Sprache und der Schriftsprache." — C. A. Ewald, "Klinik der Verdauungs-Krankheiten." ii, "Die Krankheiten des Magens."

SCHUMACHER, Berlin.—Orchansky, "Sur l'état de trouble de la conscience." — M. Bernhardt, "Beitrag zur Lehre von den allgemeinen und localen traumatischen Neurosen." — G. Burekhardt, "Weitere Mittheilungen über Gefässbewegungen, theoretisches und praktisches."

K. J. TRÜBNER, Strassburg.—H. W. Freund, "Vorschläge zur Reform des Hebammenwesens in Elsass-Lothringen."

F. C. W. VOGEL, Leipzig.—A. Volland, "Die Behandlung der Lungenschwindsucht im Hoehgebirge." (1M. 50.) — v. Ziemssen's "Handbuch." Vol. x, 9th ed. — C. Schröder, "Die Krankheiten der weiblichen Geschlechtsorgane." 9th ed. (12M.)

W. BRAUMÜLLER, Vienna.—I. Neumann, "Lehrbuch der venerischen Krankheiten und der Syphilis." i.

STATIONLEWITSCH, St. Petersburg.—Orchansky, "Sur l'innervation volontaire."

BUSCHMANN, Antwerp.—De Mets, "La réfraction et le sens chromatique dans les écoles primaires à Anvers."

PRATO, Milan.—V. Mibelli, "Sulla patogenesi dell' alopecia areata." "Sulla esfoliazione areata della lingua."

J. BALMAS PLANAS, Barcelona.—Bassols Prim, "Estudios sobre la tuberculosis a proposito del congreso que a este objeto se reunio en Paris eu julio de 1888."

DOMENECH, Valencia.—P. Colvee y Roura and D. Vincente Peset Cervera, "Experimentos sobre el alcoholismo agudo."

PINHERO, Rio de Janeiro.—D. Freire, "La mission du Dr. Sternberg au Brésil. Réfutation du rapport publié par ce médecin."

BOOKS AND PAMPHLETS RECEIVED.

Lectures on Massage and Electricity in the Treatment of Disease (Masso-electro-therapeutics). By Thomas Stretch Dowse, M. D., Fellow of the College of Physicians of Edinburgh, etc. Bristol: John Wright & Co., 1889. Pp. xix+379.

Synopsis of Human Anatomy, being a Complete Compend of Anatomy, including the Anatomy of the Viscera, and numerous Tables. By James K. Young, M. D., Instructor in Orthopædic Surgery and Assistant Demonstrator of Surgery in the University of Pennsylvania, etc. Philadelphia: F. A. Davis, 1889. Pp. ix, 3 to 393. [Price, \$1.40.] [Physicians' and Students' Ready Reference Series.]

Darwinism. An Exposition of the Theory of Natural Selection, with some of its Applications. By Alfred Russel Wallace, LL. D., F. L. S., etc. With Map and Illustrations. London and New York: Macmillan & Co., 1889. Pp. xvi+494. [Price, \$1.75.]

Strathpeffer Spa; its Climate and Waters. With Observations, Historical, Medical, and General, descriptive of the Vicinity. By Fortescue Fox, M. D. (Loud.), Fellow of the Medical Society of London. Illustrated. Loudon: H. K. Lewis, 1889. Pp. xvii+165.

Transactions of the American Orthopædic Association. Vol. I. Published by the Association, 1889.

The Medical Directory of Philadelphia, comprising Lists of Physicians, Dentists, Druggists, and Veterinarians in Philadelphia and Camden. Together with Descriptions and Details relating to Colleges, Hospitals, Dispensaries, Training Schools, Homes, Reformatories, and Charitable Organizations; the Code of Ethics of the American Medical

Association; and Laws relating to the Professions represented. 1889. Philadelphia; P. Blakiston, Son, & Co.

Transactions of the College of Physicians of Philadelphia. Third Series. Volume the Tenth. 1888.

Seventy-second Annual Report of the Managers of Friends' Asylum for the Insane.

The Radical Cure of Hernia. By Thomas W. Kay, M. D. [Reprinted from the "Maryland Medical Journal."]

Constitution and By-laws of the New Mexico Medical Society, with History. Adopted December, 1885; revised April, 1889. Las Vegas, New Mexico.

On Unusual Methods of acquiring Syphilis, with Reports of Cases. By L. Duncan Bulkley, A. M., M. D., of New York. [Reprinted from the "Medical News."]

Studies on the Aetiology of the Pneumonia complicating Diphtheria in Children. By T. Mitchell Prudden, M. D., and William P. Northrup, M. D. [Reprinted from the "American Journal of the Medical Sciences."]

Scarlatinous Otitis. By Charles H. May, M. D. [Reprinted from the "American Journal of Obstetrics and Diseases of Women and Children."]

The Rational Method of preventing Yellow Fever on the South Atlantic Coast. By J. C. Le Hardy, M. D., Savannah, Ga. (Read before the Medical Association of Georgia, at Macon, Ga., April 18, 1889.)

A Clinical Study on Alopecia Areata and its Treatment. By L. Duncan Bulkley, A. M., M. D., New York. [Reprinted from the "Medical Record."]

De la lobéline dans la thérapeutique de l'asthme. Mémoire présenté au 1er congrès brésilien de médecine et chirurgie et lu devant le même congrès à la séance du 15 Septembre 1888 par le Dr. Silva Nunes.

Reports on the Progress of Medicine.

PHYSIOLOGY.

By LOUISE G. RABINOVITCH, M. D.,
PHILADELPHIA.

On the So-called Toxic Antagonism of Some Poisons.—Besides the physiological antagonism of poisonous substances, researches have been made by some authors to find a toxic antagonism or an antidotal rôle of two poisons taken *vis-à-vis* in the organism. Atropine and morphine have been regarded as toxic antagonists.

M. G. H. Roger ("Jour. des soc. sci.," No. 21, 1888) has experimented on rabbits, with the purpose of determining the existence or non-existence of a toxic antagonism between hydrochloride of morphine, neutral sulphate of atropine, sulphate of quinine, and potassium chlorate. To be enabled to draw experimental conclusions, the author determined the poisonous dose of each element, or the toxic equivalent of Bouehard. (This dose is the toxic amount of the substance necessary to be dissolved in 20 c. c. of distilled water.) The intravenous injections were made with a rapidity of 4 c. c. a minute to the kilogramme of the animal's weight. After M. Roger's experiments with mixed injections of morphine and potassium chloride, each substance acted, as regarded its toxic equivalent, as if it had been injected alone. Often both poisons acted synergically, and their corresponding toxic effects were added to each other (morphine and atropine; quinine and morphine; atropine and quinine). In some cases the toxicity of the mixture was decidedly greater than the sum of the poisonous effects which should be expected to exist (quinine and potassium chloride). In the course of exploration of the substances named the author has never succeeded in finding a toxic antagonism, a more or less complete neutralization of one poison by another.

The Specific Action of Menthol on the Thermic Sensory Nerves (Goldscheider, "Archiv fur Anat. und Physiologie").—M. B. ("Journal de méd. de Paris," No. 26, 1888) reports the author's conclusions in

saying that the sensation of cold produced by the application of menthol to the skin or the tongue depends not upon evaporation of the substance, but upon a specific (probably a chemical) action of menthol on the terminal organs of sensation of cold. From the physiological point of view, menthol and phenol are antagonistic. A continual friction performed with a five-per-cent. solution of phenol renders the skin insensible to thermic agents. An application of menthol to such an artificially insensible part makes the sensibility reappear. The insensibility caused by cocaine injections is not remedied by menthol. If menthol acts at all, the phase of excitation may be followed by a paralytic phase. Menthol acts also, to a certain degree, on the nerves of sensation of heat and of tactile sensibility proper.

On the Chemical Phenomena of the Respiration in Electric Tetanus.—MM. Harriot and Ch. Riehet ("Jour. des soc. sci.," No. 9, 1888) give the following conclusions of their work: 1. The normal ventilation in dogs, being twenty-three litres an hour and kilogramme, is doubled by electrization. 2. The weight of carbon dioxide excreted to the kilogramme increases from the normal standard, 1.2, to 4.2. 3. The normal proportion of carbon dioxide contained in the expired air, 2.6 per cent., reaches 4.2 per cent. after electrization. 4. The ratio of the carbon dioxide and oxygen varies little, but may be augmented. 5. The surplus of the heat produced by the muscular overwork goes in part (50 to 75 per cent.) to maintain the animal heat; the remainder is spent on muscular work and radiation.

The Influence of the Pneumogastric Nerves on the Urinary Secretion.—MM. Arthaud and Butte ("Jour. des soc. sci.," No. 20, 1888) conclude from their recent experiments that the pneumogastric nerves influence the urinary and, to a certain degree, the other visceral secretions. An excitation of the peripheral end of the vagus caused a diminution of the biliary secretion; the deep vessels of the stomach contracted after an excitation of the same nerve. An excitation of the peripheral end of the cervical pneumogastric, after excision of the branches proceeding from the inferior cervical ganglion, caused a noticeable variation of the cardiac pressure, though the rhythm remained unchanged. The urinary secretion of one kidney is not equally influenced by an excitation of the right and left vagus. An excitation of the peripheral end of the right vagus, somewhat above the diaphragm, gave for a definite length of time in the right kidney zero, and in the left 12 c. c. of urine; the same stimulus on the left side gave 11 c. c. from the right, and 8 c. c. from the left kidney. The conditions were not influenced by whether the stimulus was applied to the vagus above or below the heart. The facts lead the authors to think (1) that the variations of the cardiac rhythm do not influence the phenomena of secretion, and that this is an indirect demonstration of the special vasomotor action of the pneumogastric on the kidneys; (2) that a crossed distribution of the vagi exists.

Note on the Modification of the Electric Tension in the Human Body.—M. Ch. Féré ("Jour. des soc. sci.," No. 5, 1888) calls to mind the fact that certain animals whose skin is remarkably dry, like the cat, have the property of accumulating electricity under certain circumstances (especially under the influence of rubbing), and losing it under the form of a flash; that some individuals present the same phenomenon to a certain degree, especially in dry and cold weather, when the atmosphere is relatively deprived of humidity. The electricity is then said by M. Féré to be seen to discharge from the human body through the hair in the form of flashes or tufts, producing a characteristic crackling sound. The author states some convincing examples, and supposes the fact to be of importance for the theories of hypnotism and the transference of polarization, elective sensibility, and certain actions at a distance.

Experimental Researches on the Reproduction of Albuminoids in the Blood.—M. Sophin ("Jour. des soc. sci.," No. 20, 1888) has performed experiments under the directions of M. Dastre. The following are the results: 1. An augmentation of the albuminoids of the blood is noticed after the withdrawal of a given quantity of the same from the blood, the animal remaining in a stage of inanition after the operation. This augmentation is absolute, not merely relative; in three experiments the augmentation was 20, 22, and 29 grammes. 2. The relative and absolute augmentations of the albuminoids are due principally to the growing number of the red globules. 3. The augmentation of the al-

buminoids in the serum is relatively feeble; in the three cases it was 8, 11, and 6 grammes. 4. The fibrin is considerably augmented as compared with its normal amount in the blood.

The Action of Intravenous Injections of Glucose.—M. L. Butte ("Jour. des soc. sci.," No. 20, 1888) has shown in a previous work that one part of the injected glucose disappeared in the economy and the remainder was eliminated. His late researches, performed to ascertain what became of the glucose retained in the organism, give the following results: The central temperature rises gradually after an intravenous injection of glucose. As regards the modifications of the pulmonary exhalation of carbonic-acid gas, they are constant and in intimate relation with the presiding temperature. In six experiments M. Butte observed constantly an augmented weight of the exhaled carbon dioxide after twenty, thirty minutes, and even an hour, after the injection. The author concludes by saying that the nutrition is evidently augmented after an injection of glucose. The fact is sustained by the rise of the temperature and by the increased quantity of oxygen absorbed and carbon dioxide exhaled in the substance of the tissues. With reference to the overactivity of the nutrition, M. Butte attributes it to the combustion of the glucose, and adds that it must only be an exaggerated physiological phenomenon, as shown previously by Chauveau, who saw in glucose the principal source of animal heat.

Some Examples of Dynamogenesis in the Centers of the Organs of Special Senses (Mathias Duval, "Comptes rendus de la soc. de biol.," December, 1887).—Paul Loye ("Rev. des sci. méd.," No. 6, 1888) reports that simple luminous excitations (without any image) of one eye bring about a relatively clearer perception of an image by the other eye. The analogous fact is true of the sense of hearing; some deaf persons hear distinctly sounds pronounced while a noise is being continually produced; the same sounds do not affect the same patient's hearing in an absolute silence. These facts seem to depend upon the general phenomena called by Brown-Séquard dynamogenesis.

On the Conjoint and Correlative Action of Antithermics and Antipyretics on the Nervous System, and particularly on the Sensory Centers; Relative Deductions on the Seat of Thermogenesis.—In this note M. J. F. Laborde ("Jour. des soc. sci.," No. 21, 1888) shows that M. Lépine's experiments on acetanilide lead to the following law: All true antithermic agents, or agents which reduce the normal animal temperature (the pulse being almost always simultaneously diminished), act at the same time on the sensory function of the nervous system, and attenuate or abolish this function. The statement is thus formulated: All thermic moderators are necessarily moderators of the nervous sensory actions. The facts are important, M. Laborde alleges, from the practical and doctrinal points of view, for they touch directly upon the problem of thermogenesis. Expecting to report in future a thorough study of the subject, the author relates his principal conclusions as follows: 1. The antithermic action is exerted primarily and preferably on the sensory centers of reception and perception in a manner to reduce or annihilate instantaneously the functional activity of these centers; hence thermic depression must be followed by correlative depression of the phenomena of sensibility. 2. It follows that the organic centers of sensibility and those which preside over the dissipation of animal heat are in intimate relation. It results that the location of the thermogenic focus or foci is reduced to the location of the centers of sensibility. 3. It is important not to neglect the fact of the intimate relation existing between the trophic phenomena and those of sensibility. The conscious sensibility which belongs to and must be looked for in the cerebral sphere must be strictly distinguished from the reflex sensibility belonging to the spinal region, since experimental work shows that (a) a section or any equivalent lesion of the spinal cord is followed by a progressive thermic reduction, which approximates a warm-blooded to a cold-blooded animal, and this condition interferes with a further production of heat; (b) any lesion of the cerebral centers provokes hyperpyrexia, and this implies thermogenesis. In the light of these facts, the focus of thermogenesis must be located in the cerebral regions. The author concludes by referring to the recent works of Schreiber, Ott, Carpenter, Ch. Richet, etc., which have shown the existence of thermic centers in the cerebrum. Gerard's experiments are finally referred to, which confirm the existence of cerebral thermic centers (in the corpus striatum).

The Influence of the Proportion of the Atmospheric Oxygen on the Respiration (Speck, "Zeitsch. f. klin. Medicin.," Band xii, p. 447-532).—A. F. Plique ("Revue des sci. méd.," No. 63, 1888) formulates the author's work thus: The proportion of the atmospheric oxygen may vary within the limits of minimum 9, and maximum 63 per cent. without causing any discomfort in men. But it is necessary to remain motionless at the minimum proportion, all muscular activity increasing the need for oxygen. The acceleration of the respiratory movements and pulse begins at the ratio of 10 per cent. of oxygen. The augmentation and diminution of the production of carbon dioxide are not synchronous with the corresponding phases of the oxygen. The reverse is rather true, *i. e.*, the minimum amount of oxygen being accompanied by a maximum production of carbon dioxide. The utilization of the augmented proportion of oxygen by the economy increases as long as this gas can dissolve in the serum and combine with the hæmoglobin; the surplus of oxygen remains indifferent and without chemical action. A diminished amount of oxygen is of no consequence as far as the limit of 9 per cent.; at a ratio of 7 to 8 per cent. labored respiration begins.

An Experimental Investigation of Strychnine Poisoning.—At the suggestion of Dr. Henry P. Bowditch, the work was undertaken by Dr. Robert W. Lovett ("Jour. of Phys.," Nos. 2 and 3, 1888) to ascertain if the spinal cord showed any special facility in taking strychnine from the circulation and storing it up in its tissues; or, in other words, to determine whether strychnine exercised its peculiar power upon the spinal cord because there was more of the drug present there than in the other organs, or because the cord was more susceptible to its action than muscle, brain, liver, etc. After a careful and minute investigation of the subject the problem is answered in a general way as follows: 1. The spinal cord has the power of selecting strychnine from the circulation and of storing it up in its structure, for at the occurrence of convulsions, or at a definite time after the injection of a certain amount of the drug, the cord is found to contain relatively more than the liver, the muscles, the brain, or the ovary. That the fact is not due to the marked vascularity of the cord is shown by taking into consideration the rich vascularity of the liver, which yet contains a smaller amount of the drug, as compared with that of the cord. 2. At the time of convulsions the relative amounts of strychnine in the blood and in the spinal cord vary with the amount of the drug administered. If it is a large dose, the blood contains overwhelmingly more; but if it is a small dose, a larger amount relatively is found in the cord than in the blood. The amount of the drug in the cord necessary to produce convulsions seems to be more or less constant, independently of the dose, the surplus of the same in the blood being, apparently, in proportion to the size of the dose administered. The author concludes that the spinal cord in cases of strychnine poisoning certainly contains more strychnine than other organs; but whether or no it is more susceptible to the drug than other organs can not be ascertained at present. It is added also that, in a medico-legal sense, the work is of importance as regards the storage power of the spinal cord for strychnine, and especially where the stomach contents can not be relied upon in cases of poisoning by this drug; and in this respect it is an addition to the work of Dr. Chittenden on the "Significance of the Absorption and Elimination of Poisons in Medico-legal Cases."

The Influence of the Ramus Lingualis Trigemini on the Formation of Lymph in the Tongue (A. Maracacci, "Arch. ital. de biol.," iv, 1).—M. Dastre ("Rev. des sci. méd.," No. 63, 1888) reports the author's agreement with Ostroumoff's view that a prolonged excitation of the tongue causes œdema of the corresponding part. M. Maracacci observed the persistence of the difference in volume of the two halves of the organ after section of it, and also after death by hæmorrhage the latter excluding engorgements of the vessels. Anatomical examination by means of Prussian-blue injection enabled the author to find that the larger lymphatics of the tongue reached a ganglion of considerable size in the vicinity of the submaxillary. Excitation caused this ganglion to swell considerably on the side of stimulation. The filling lymph is regarded as originating in the tongue itself, and the fact is ascertained by compressing the organ to interfere with the afflux of lymph from other parts. It is concluded that the lingual nerve has a direct influence on the production of lymph in the tongue.

On the Resorption of Liquids introduced into the Subcutaneous Lymphatics of the Frog (J. Archanow, "Archiv für Physiol.," p. 377, 1887).—M. Léon Frédéricq ("Revue des sci. méd.," No. 63, 1888) reports the author's experiments on frogs. The lymphatics of the posterior extremity were injected with from 0.2 to 0.3 c. c. of a sodium indigosulphate solution, and a blue coloration of the tongue followed; the beginning of the coloration is supposed to coincide with the moment of absorption. M. Archanow demonstrates that the absorption is performed independently of the lymphatic heart, and that the coloring matter penetrates directly into the blood-vessels at the very seat of injection; that the absorption depends upon the permeability of the blood-vessels, regardless of the conditions of the lymphatic tracts. The absorptive power is augmented with the elevation of the temperature, by the acceleration of the cardiac pulse, and by the movements of the animal. It is not interfered with by the destruction of the central nervous system. The latter is regarded as exerting an indirect influence by governing the heart and the movements of the extremities.

Experimental Studies on Hyperpyrexias.—M. Ch. Richet ("Jour. des soc. sci.," No. 20, 1888) has studied the influence of artificial hyperpyrexia, and the result of maintaining the high temperature for a considerable length of time. He says that animals whose temperature attains 45° C. [113° F.], and even 45.6° C. [114° F.], may survive if this thermic stage lasts for a short interval. But an animal succumbs if its temperature is about 43° C. [109.4° F.] for two hours; a crisis occurs before death, the temperature gradually falls, the nervous system seems powerless to generate any more heat, and finally death ensues. Chloralazation previous to the artificial hyperpyrexia was found by the author to hasten and assure death. The effect of chloral on the nervous system is considered as that of a depressing agent, which is added to that of the hyperpyrexia. This fact, it is stated, must be of importance in medicine, for the use of chloral seems dangerous in delirium, insomnia, and in other accidents occurring in hyperpyretic patients.

Apparatus for the Determination with Precision of the Exterior Thoracic Shape, the Extent of the Respiratory Movements, the Profiles and Sections of the Trunk, and the Amount of Inspired and Expired Air (Presented by M. Marey).—M. G. Demy ("Jour. des soc. sci.," No. 20, 1888) has shown the permanent modifications of the frequency and amplitude of the respiratory movements which occur in individuals who perform great muscular exertion, and particularly in those subject to the exercise of running. The author finds that after a six months' course at the school of gymnastics of Joinville le Pont, in Paris, the respiratory frequency diminishes to half the normal standard, but the amplitude increases considerably. The apparatus is composed of: 1. A compass scriber to measure the thoracic diameters and to inscribe the variations of these diameters in the inspiratory and expiratory phase. 2. A thoracometer giving the form of a horizontal section of the thorax at a given height. 3. An inscription apparatus for different profiles of the body. 4. A registering spirometer.

The Influence of the Nervous System on the Collateral Circulation (A. Stefani, "Accademia di Ferrara," July, 1887).—M. Dastre ("Rev. des sci. méd.," No. 63, 1888) reports the following: The reasons of the formation of a collateral circuit after ligation or obliteration of a main artery are unknown. The old doctrine of the mechanical effect of the augmentation of pressure and dilatation of the collateral arteries has no ground. The author seeks for an explanation of the fact in a nervous influence. In previous experiments the axillary artery in the salamander was ligated. A collateral circulation was found to be established in cases where the nerves were intact; a section of the nerves interfered with the circulation. In frogs the facts were approximately the same, though in some cases the collateral circulation was found in the absence of the nervous influence. Experiments on rabbits were not conclusive, for the ligation of the vessels and section of the nerves induced gangrene of the limbs. Experiments on birds gave results which agreed with the author's views. The author tries to establish that this nervous action is of a reflex nature, having its starting-point in the exsanguinated organ and its cause in the anæmia itself, transmitted to the nervous centers and reflected upon the vessels of the region in which dilatation occurs.

Miscellany.

ANSWERS TO CORRESPONDENTS.

No. 272.—We have not been able to find anything in literature on that particular point, but we have no doubt of the availability of the dynamo current for the purpose mentioned. We would suggest your writing to the Edison Company.

No. 273.—We doubt the possibility of obtaining one, and we very much question the expediency of asking for it. As we understand the matter, the board assumes that an applicant is prepared for any sort of examination, and might conceive an impression against him if he sought to ascertain the scope of the examination in advance; moreover, the examination is not wholly in writing.

No. 274.—See Taylor's "Clinical Atlas of Venereal and Skin Diseases," part i, page 26, foot-note; also the article there referred to.

No. 275.—Much has been published on that subject. Among books that are readily accessible, we would refer you to Creighton's "Bovine Tuberculosis in Man," London, 1881.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

LABORATORY NOTES OF TECHNICAL METHODS FOR THE NERVOUS SYSTEM.

By IRA VAN GIESON, M. D.,

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METHODS OF OPENING THE BRAIN AT AUTOPSIES AND FOR GENERAL DISSECTION OF THE BRAIN.

1. *Meynert's Basal Section of the Brain.*—The ordinary method of opening the brain at autopsies by slitting open the corpus callosum, laying aside the hemispheres, and then making longitudinal and transverse incisions, renders it difficult to handle the brain without tearing it, and, after hardening, the pieces can not be fitted together well, so that the lesions may be accurately localized in conjunction with the microscopical examination. Meynert's section is much more valuable for the purposes of localization after hardening, and is recommended for general use at autopsies and as an instructive method for demonstrating to students the coarser anatomy of the fresh brain. With some modifications of Meynert's original plan, the section is made as follows:

Resting the brain upon its hemispheres and lifting up the cerebellum, the pia mater and vessels are cut above the corpora quadrigemina and around the crura and inner margins of the temporal lobes on either side until the middle cerebral arteries are reached. The incision of the pia then follows the middle cerebral arteries into the Sylvian fissures, and passes to the terminations of the posterior branches of the Sylvian fissure. As the incision of the pia follows in this way, the boundaries of the temporal lobes, the temporal convolutions should be gently separated from the neighboring convolutions and from the base.

The apices of the temporal lobes are then lifted up, and, resting the knife flat on the base, their junction with the base is cut, until the descending horn is opened. Then inserting the knife into the descending horn, the incision passes outward and backward to within an inch of the apex of the posterior horn, or even to its extremity, severing the junction of the occipital and temporal convolutions on the lateral surface of the brain. During this manipulation the cornu Ammonis and posterior pillars of the fornix should not be cut. The temporal lobes are thus freed from the base and folded outward and backward over the occipital lobes, giving access to the island of Reil (Fig. 1). The operculum is then pulled well outward to completely expose the convolutions of the islands, and a slightly curved transverse incision (*a, a*, Fig. 1), with the convexity directed frontally, is made connecting the anterior sulci of the islands on both sides. This incision should be deep enough to pass through the anterior horns of the ventricle to the corpus callosum.

The cerebellum is then lifted up with the left hand, and placing the knife in the ventricle at *c*, Fig. 1, and passing it beneath the rounded posterior extremities of the optic thalami, the internal capsules on either side and the anterior

pillars of the fornix and septum lucidum are cut from behind forward without injuring the basal ganglia. As the



FIG. 1.—Drawing of the brain, showing how the brain axis is exposed before it is cut out. *a*, anterior sulci of the islands of Reil; *b*, convolutions of the island; *c*, descending horn in the reflected temporal lobe; *d*, cornu Ammonis, with the posterior pillar of the fornix passing from it into the ventricle; *f* passes across the convolutions of the operculum to the cut surface of the junction of the temporal lobe with the base.

internal capsules are being cut, the cerebellum is gradually rolled over forward on the base, in order to lift up the basal

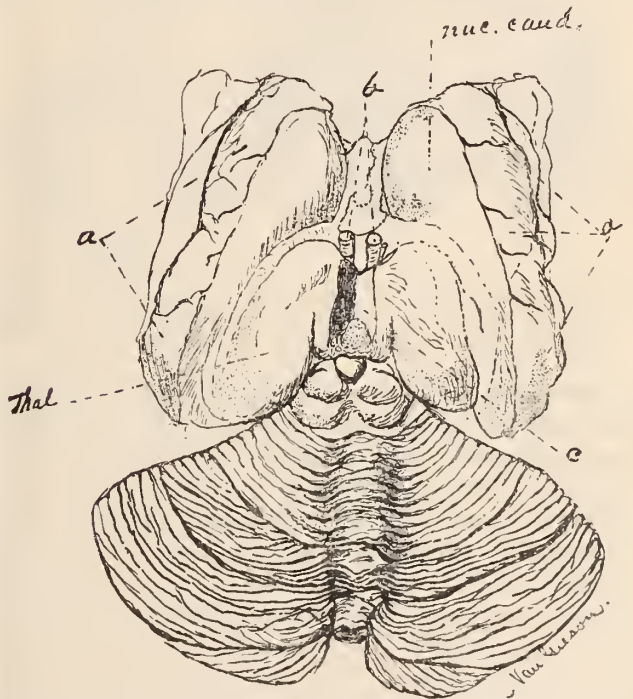


FIG. 2.—Ventricular surface of the basal piece or brain axis. *a*, *a*, fibers of the internal capsule cut transversely as they enter the basal ganglia; *b*, anterior pillars of the fornix cut across; *c*, third ventricle; *nuc. caud.*, caudate nucleus; *thal.*, optic thalamus.

ganglia from the corpus callosum. A square piece—"the basal piece" (Fig. 2)—is in this way cut out of the base. The fornix is left lying on the corpus callosum.

When the brain is soft, and in children's brains and in cases where the basal ganglia are injured by hæmorrhage, the above-described method of removing the basal piece is modified by putting the index and middle fingers of the left hand through a transverse incision of the base (Fig. 1, *a, a*) into the anterior horns of the ventricles and raising the basal piece, while the internal capsules, anterior pillars of the fornix, and septum lucidum are cut from before backward. This plan of cutting out the base is not recommended except when the brain is very soft, because the introduction of the fingers into the ventricles is apt to damage the ependyma.

The advantage of this plan of opening the brain is that it uniformly separates the organ into two great anatomical subdivisions. The square basal piece—the *brain axis* (Fig. 2)—includes the island, basal ganglia, internal capsules, crura, pons, medulla, and cerebellum. The remaining piece—the *brain mantle of Burdach* (Fig. 3)—includes the con-

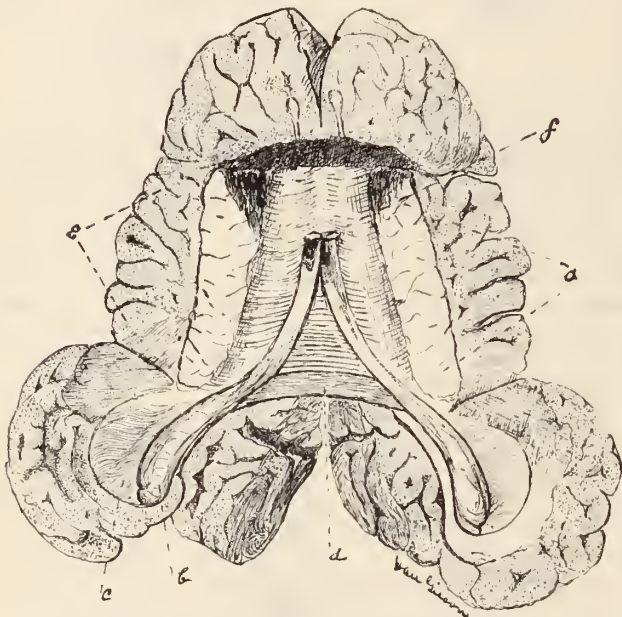


FIG. 3.—Ventricular aspect of the brain mantle. *a*, internal capsule; *a'*, posterior border of the corpus callosum; *b*, cornu Ammonis; *c*, descending horn; *e*, operculum; *f*, anterior pillars of the fornix cut transversely.

volutions, corpus callosum, fornix, and cornu Ammonis. This method also exposes the internal capsule (Figs. 2 and 3) advantageously for the localization of lesions in the internal capsule, because its fibers are cut transversely between their entrance into the basal ganglia and the centrum ovale.

Both these pieces may be hardened *en masse* by making transverse incisions about one half to three quarters of an inch apart in the basal piece, and both transverse and longitudinal incisions into the white matter of the larger piece not quite reaching to the pia mater, which serves to hold the convolutions together for the purposes of localization after hardening. The incisions should be kept open with absorbent cotton, and each piece should be suspended in gauze or laid on absorbent cotton in a large volume of Müller's fluid (five or six times the volume of the pieces), which is kept cool and changed on the second, fifth, and eighth days, and again in the third week. It is best to remove the cerebellum from the rest of the brain axis at

the autopsy unless the integrity of its pontal relations is desirable, so that in hardening the fluid may penetrate into the floor of the fourth ventricle. The cerebellum is removed by cutting away its crura close to the pons. The practice of inspecting the fourth ventricle by splitting the cerebellum in the median line is apt to distort the floor of the fourth ventricle by the traction of the two divergent cerebellar hemispheres.

2. *Division of the Brain into Transverse Segments for Examination at Autopsies.*—This method is used quite frequently at the laboratory in Heidelberg, and consists simply in making serial transverse vertical slices of the brain about three quarters of an inch thick, first having removed the cerebellum and pons by cutting the crura cerebri transversely. When the slices have been hardened they may be easily fitted together for the detailed localization of the lesions. This method is good for the preparation of certain museum specimens and for lantern demonstrations of tumors or cortical lesions by stained sections of the entire brain, made with the Gudden microtome.

3. *Preparation of the Brain for the Dissection of the Association, Commissural, and Projection Fibers, by the Cleavage Method.*—The pia mater is carefully removed from the convolutions, and the brain—suspended in gauze in forty-per-cent. alcohol, which is renewed on the third day—is turned on a new surface each day to avoid flattening. No incisions are made except a small one through the infundibulum to let the fluid into the lateral ventricles. At the end of the first week of hardening, the alcohol is replaced by sixty-per-cent. alcohol; at the end of the fourth week this is replaced by eighty-per-cent. alcohol, and then, for three weeks or a month, the brain is left in strong alcohol. With this treatment the bundles of fibers of the white matter become tough and elastic, and a particular tract may be isolated by pushing and cleaving aside the surrounding structures with a scalpel handle. The same method of hardening may be used if dissociation of the tracts is to be practiced in some particular portion of the brain, such as the brain axis or brain mantle.

As an example of how a system of fibers may be dissected out when the brain is successfully hardened in this way, the path of the motor tract in the brain axis is selected. The brain axis (Fig. 2) is hardened as described above, and the pyramids of the medulla are loosened from the olivary bodies, and from each other in the median line to their decussation, with the handle of a scalpel. The superficial transverse fibers of the pons are cut in the median line and pushed away from the pyramids with the scalpel handle inserted in the groove between the inferior pons border and medulla, until they are reflected as two flaps on the middle cerebellar crura. The pyramids are now exposed between the two sets of transpontal fibers, and, when freed from a few interlacing pons fibers, they may be picked up with the forceps and followed up through the middle thirds of the crura into the internal capsules. This method is exceedingly valuable for teaching purposes, and a series of these cleavage dissections is the best way of giving students a clear idea of the various association, commissural, and projection systems. Plates 18 to 22 of Meynert's

"Psychiatry," translated by Sachs (Putnams, New York, 1885), and Plates 28 and 30 in Edinger's "Zeln Vorlesungen über d. Bau d. nerv. cent. Organe," 1885, may be used as guides for other dissections of the different systems composing the white matter.

NOTES ON THE HARDENING OF THE BRAIN.

Müller's fluid does not preserve the ganglion cells as perfectly as bichloride of mercury or alcohol, but it preserves the nerve fibers and neuroglia well; it gives the proper consistence for cutting sections, and all the important methods of staining the nervous system depend upon bichromate hardening. The obstacle in getting perfect hardening results with Müller's fluid is the great impermeability of the cerebral tissues. To get the best results in hardening the pieces should not be more than one to two cubic centimetres in volume, and should be left in the fluid at the temperature of the room until they have a dark-brown color, and sections cut by hand do not wrinkle when placed in water. This may take four or five months or longer, and the blocks should be frequently tested to guard against their becoming brittle. Rapid hardening in the thermostat is not often used in this laboratory; it is not so good as slow hardening at low temperatures, or at the ordinary temperature of the room. In hardening with heat, the superficial portions of the specimens become hardened too rapidly, and become dense and prevent the fluid from gaining access to the central portions of the blocks. If rapid hardening is necessary, it is much better to renew the fluid frequently after the first two or three weeks of the hardening, and at each renewal to gradually increase the strength of the bichromate-of-potassium solution up to five per cent. *Erlicke's solution* hardens the superficial portions of the blocks more rapidly than Müller's fluid, and consequently does not preserve the central portions so well. It also has a greater tendency to make the specimens brittle. The bichromate solution should always contain camphor (a piece of the size of a pea to each pint of the fluid) to prevent the development of micro-organisms.

When specimens have become brittle it is very difficult to get them into good condition for cutting. A prolonged immersion of the specimens in equal parts of glycerin, alcohol, and water reduces the brittleness somewhat, but the best results have been obtained by soaking the blocks for twenty-four or forty-eight hours in a fifty-per-cent. or stronger aqueous solution of ammonia. A twenty-four-hours' immersion in peroxide of hydrogen also tends to make the specimens less brittle. When very large segments of the brain are to be preserved for microscopical examination it is best while hardening to keep the bichromate solution cold for the first month or two in a refrigerator.

If specimens are not thoroughly hardened in Müller's fluid, the subsequent permanent preservation in strong alcohol does them considerable injury. The alcohol slowly dissolves out the chrome salts and changes the myelin. In the course of a year or two cholesterol crystals form in the alcohol, and minute cavities and vacuoles appear in the specimens and they do not stain well. If for any reason it is necessary to examine specimens before they are thoroughly

hardened, it is best to keep the material for permanent preservation on the shelves in water containing camphor, or dilute, thirty to forty per cent., solutions of alcohol. In the laboratory even thoroughly hardened material is not kept permanently in strong alcohol. Seventy or eighty per cent. is used, and in certain cases water. Well hardened material kept in water has a tendency to become brittle in the course of years. The structure of the neuroglia never shows so well, and carmine staining is never so successful in sections of material which has been placed in alcohol as in sections cut from specimens while in Müller's fluid, or kept in water slightly tinged with Müller's fluid.

DIVISION OF THE SPINAL CORD INTO ITS ANATOMICAL SEGMENTS FOR MICROSCOPICAL EXAMINATION.

The portions of the cord from which each pair of spinal nerves arise are termed the corresponding segments of the cord, and it is desirable to use this well-defined anatomical segmental structure of the spinal cord as a basis for the localization of lesions in the microscopical examination. We can then know exactly from what part of the cord a given section is taken.

The cord may be hardened with the dura mater attached, but is distorted less if the dura is removed. At intervals of little less than half an inch the cord should be traversed by transverse incisions not completely severing the cord, in order that the pia mater may hold the pieces together in their serial order. The cord is then rolled up in a loose spiral and laid in Müller's fluid on absorbent cotton. After the subsequent alcohol hardening the attachments of the nerve roots form a guide for the division of the cord into its proper segments.

To distinguish the spinal segments after they have been taken from their serial order in the hardened cord, I have found it most convenient to mark them by sticking a hot teasing needle in the white matter of one half of the upper surface of each segment. This burns a permanent little hole in the segment, and, by making notes of the different positions of the needle-holes in the different segments, a number of blocks from the cord may be carried through the celloidin imbedding process together and easily identified. If imbedded on pieces of white wood, the number of the segment or portion of the spinal segment to which the imbedded specimen belongs may be written on the wood in pencil. In the sections the needle-hole also indicates the right or left hand side of the cord. When it is necessary to examine the spinal nerve roots, these may be reflected against the corresponding segment and tied in place with thread, and then the segment with its roots is imbedded in celloidin, so that transections of the upper level of the segment will include transections of the corresponding nerve roots. The lumbar and sacral segments are so short that the entire segment may be mounted on the block of wood; but in the cervical and dorsal regions it is more convenient to use only the upper thirds or quarters of the segments for mounting.

OSMIC-ACID STAINING OF LARGE NERVE TRUNKS.

Most of the human peripheral nerve trunks are so thick that osmic acid does not penetrate into them when stretched

out in the ordinary way on a bridge, as advised by Ranvier. To stain the human posterior tibial or sciatic nerves affected with peripheral neuritis, the nerve trunks are cut with sharp scissors into segments a little less than half an inch long. One extremity of the segment is held with a forceps, and with a second forceps the protruding funiculi at the other extremity are gently pulled out of their lamellar sheaths and laid in the one-per-cent. osmic-acid solution for twenty-four or forty-eight hours. This manipulation cracks the myelin sheaths transversely somewhat, but the osmic acid penetrates well among the fibers, and stains them quite uniformly. Osmic-acid nerves are kept best in glycerin.

NEW STAINING METHODS FOR THE PERIPHERAL NERVES.

1. *Dilute Aqueous Solution of Basic Fuchsin for staining the Connective Tissue of the Peripheral Nerves in the Fresh Condition.*—A slender funiculus of a human nerve, pulled out as described above, or a bit of the sciatic of a frog or mouse (not over half an inch long), is laid upon a slide for twenty to thirty seconds, until its surface begins to stick to the glass. (If the bit of nerve is very wet, it is moved about on the slide until some of its surfaces begin to adhere to the glass.) Then, with two teasing needles, the nerve is rapidly rolled or pulled away from the adherent portion, so that it is spread out into a thin film on the glass. Before it dries—this is to be avoided by breathing on the specimen—a drop or two of an aqueous solution of basic fuchsin, such as is used for bacterial staining (one drop of a saturated alcoholic solution of basic fuchsin in eight or ten c. c. of distilled water), is placed on the specimen. The slide is inspected with the low power, and in two or three minutes the nuclei of the endoneurium will be stained. The specimen may be mounted and studied in the staining fluid, or the dye may be washed with water; the stained nerve is dried in the air on the slide and permanently mounted in balsam. In drying in the air, the endoneural cells are not perceptibly distorted. Sometimes the dye penetrates through the constrictions of Ranvier for a slight distance between the axis-cylinder and periaxial sheath. I have found this method of service in studying the endoneurium in normal nerves, in experimental nerve lesions, and in peripheral neuritis in the human nerves.

2. *Acid Fuchsin for staining Isolated Hardened Nerve Fibers.*—Nerves are hardened from three to five weeks in Müller's fluid, and then, after washing out some of the Müller's fluid in water, for a week in strong alcohol. A slender strand of fibers, about half an inch long, is teased very finely in water on a slide. The water is then removed, and the specimen covered with a drop of a saturated aqueous solution of acid fuchsin (Grübler's) for two to five minutes. The teased fibers are washed in water, then thoroughly in two alcohols, cleared in oil of cloves, and mounted in balsam. The axis-cylinder, neurilemma, constrictions, incisures of Schmidt, neurilemma nuclei, and branching cells between the fibers have a distinct red color. In successful preparations the incisures show very distinctly. This method is so simple and efficient in demonstrating all the details of the nerve fiber, except the medullary sheath,

that it is recommended for staining specimens for classes in normal histology.

The most convenient nerves to prepare for this method are the spinal nerve roots, because they can be teased more readily than the peripheral nerves, which contain more connective tissue. When nerves have been hardened for a short time (three to eight days) in Müller's fluid and subsequently in strong alcohol, or when they have been placed in ether and then hardened in alcohol, or when they have been entirely hardened in alcohol, the myelin is coagulated in the form of a network—the neuro-keratin network. This method also stains the neuro-keratin network distinctly. Fibers stained by this method may be kept for months in oil of cloves.

3. *Peroxide of Hydrogen for bleaching Peripheral Nerve Fibers stained with Osmic Acid.*—Osmic acid preserves nerve fibers more perfectly than any other reagent, but very often the medullary sheath is stained so dark that the other details are obscured. Peroxide of hydrogen removes the black color from the myelin and makes the fibers transparent, so that they may be examined with high powers. The stained fibers are teased in water, and a few drops of hydrogen peroxide are flowed under the cover glass, while the specimen is being examined with high-power lenses. Sections of osmic-acid nerves may be bleached in the same way, but it is difficult to stain them afterward with the ordinary dyes. If the fibers are treated with strong alcohol after they have been bleached in the peroxide solution, the myelin coagulates in the form of a network. This method is good for studying the incisures of Schmidt and the structure and size of the axis-cylinder, which does not shrink in careful osmic-acid hardening.

ACID FUCHSIN AND PICRIC-ACID MIXTURE FOR STAINING SECTIONS OF THE PERIPHERAL NERVES AND CENTRAL NERVOUS SYSTEM.

Sections which have been properly hardened in Müller's fluid and then in alcohol are stained rather deeply with hæmatoxylin—preferably Delafield's solution—to color the nuclei. They are then washed in water, and left for three to five minutes in acid fuchsin and picric-acid mixture prepared as follows: A few drops of a saturated aqueous solution of Grübler's acid fuchsin is added to one hundred c. c. of a saturated aqueous solution of picric acid, until the mixture has a dark-garnet color. The sections are then rapidly washed in water and in two volumes of alcohol, cleared in oil of origanum, and mounted in balsam. This stain selects the ganglion cells, neuroglia, blood-vessels, and sclerotic areas, distinctly giving them a garnet color. The axis-cylinders are stained red and the myelin is stained yellow. This stain is used considerably in the laboratory in place of carmine.

Transplantation of the Cornea.—The "Lancet" says that "Dr. Gradenigo, Professor of Ophthalmic Surgery in the University of Padua, has just succeeded in transplanting the cornea from the eye of a barn fowl into the eye of a patient under his care. On the eighth day after the operation the transplanted cornea presented a quite pellucid and convex appearance. Such a result has not yet been recorded in the annals of continental surgery."

THE GENESIS OF TUMORS.*

By THOMAS H. MANLEY, M. D.

ALTHOUGH the title of this essay is suggestive of a discussion of much interest, I may say in the beginning that my efforts will be directed not so much with a view of presenting anything new or original in the study of new formations as to a review of the features peculiar to some of them, and especially important to the surgeon and practitioner to become familiar with and recognize.

The study of the origin, physical properties, special processes, ætiology, and termination of tumors has from the very earliest ages occupied the attention of many of the ablest minds in medicine.

We find in the works of Hippocrates many observations replete with interest in connection with those morbid growths which now, in our days of microscopical analysis, seem rather crude, but are yet not without considerable clinical value.

And so we do in the writings of others, from Galen and Ambroise Paré down.

From all that can be gleaned from the writings of the Greek, Arabian, and Roman practitioners, they always looked on the advent of a tumor with great alarm, classed all in the same category, the benign and the malignant, and never undertook their removal with the knife, but were usually contented with internal medication, which they firmly believed would reduce in volume or wholly dissipate many of great size. Occasionally, however, besides drugs, some used the seton or caustic when the growth was diminutive or very superficial.

For those large and deep seated, or connected with the trunks of large vessels, nothing was promised or attempted in the way of external applications.

With the dawn of dissection, the use of the ligature and of the microscope, and with the flood of light reflected from the brilliant genius of John Hunter, Astley Cooper, Baron Larrey, Dupuytren, Malgaigne, Graafe, Lucitanus, Virchow, Mott, and Physick, besides many others, immense and rapid strides were made in our knowledge of this branch of surgery.

The keen and analytical eye of the early anatomist quickly discerned the wide difference in the consistence, location, and peculiarities of each; and from *macroscopical* observation alone a rather primitive but very useful classification was made.

We had tumors from humors, from injuries, and from heredity. Every kind of sore which had for its characteristics pain and persistence was designated cancer and deemed malignant. Very naturally in the early days of surgery very little use was made of the knife, as complete anæsthesia and the ready methods of controlling hæmorrhage were then unknown. The knowledge of the minute physical elements, molecules, or cells, the histology of normal tissue, or the pathology of morbid enlargement, was impossible till the microscope was invented; and we may truly say that all

was conjecture; that we had no real foundation for scientific classification till the latter half of the present century.

At present our classification, though of infinite value, is based mostly on physical peculiarities, on cell elements, on the form and arrangement of the latter, and is not only very imperfect, but in some instances deceptive and delusive, with a tendency to work evil if too rigidly adhered to.

This comes from too much reliance on pathology and an attempt to create a purely artificial distinction in deranged histological changes.

The presence of a certain microbe is held to be enough to decide the true nature of a lesion or growth and to indicate its probable termination.

The ætiology of tumors is still very obscure; about their causes little is positively known. Much time has been spent, extensive research made, and most profound analytical reasoning exhausted in fruitless efforts in this direction. Here, indeed, nature seems to defy art and, as it were, imply that there must be a limit to its advance, though, with the astounding progress made in not only arresting but curing disease by the revelations of Jenner, Pasteur, and Lister, we have good reasons for hoping that this ground will soon be broken, and that many of those now seemingly incurable afflictions will readily yield to scientific management and their nature be better known.

Why an organized structure will at times become the seat of histological derangement—as, for instance, an inward infiltration of epithelial cells penetrating and destroying everything in its destructive march—while at another, under apparently similar conditions, there is a formation of benign variety, we do not understand, and hence can not explain. All we can do is to study the apparent origin, course, and results in each in the way they interest us, and to this end a few considerations are now offered. Broadly stated, all neoplasmata may be divided into two varieties—the benign and the malignant. Each is totally unlike the other in its natural—or, as it is termed, its clinical—history, but with cellular elements or histological structure quite similar.

In tumors we have every kind of organization, development, transformation, disintegration, degeneration, retrogression, and metastasis, the liquids in each at times becoming solids, and *vice versa*, the benign becoming malignant, and the contrary; the hopelessly incurable, for some unknown, inscrutable reason, coming to a halt and making no further progress, or perhaps fading out of sight altogether; while, on the other hand, the apparently innocent are seen suddenly taking on appallingly destructive changes. No race, age, sex, or condition is exempt, but the course of each is markedly influenced by any of the foregoing circumstances. Since the microscope has come into general use many are deluded with the impression that by its use *alone* we can definitely and absolutely recognize the true nature of those morbid formations. By the aid of the lens it is an incontestable fact that we have been able to better see the minute elements of a part; that the field of vision has been vastly extended by its intelligent use; but, no matter how perfect the instrument or well trained the manipulator, there are growths which can not be diagnosed by this sole agency.

* Read before the Fifth District Branch of the New York State Medical Association, May 28, 1889.

The only manner in which the true nature of a neoplasm can be certainly decided is by cautious, continued clinical observation in conjunction with the aid of this instrument.

I believe, from experience, that in more than ninety per cent. of morbid growths the skilled and careful observer will recognize their character with certainty by their naked-eye appearance, their history, and the condition of the patient.

We all lately saw a most timely and truthful illustration of this in the case of the late unfortunate Crown Prince of Germany. The German doctors met in consultation and unanimously agreed that their august patient was stricken with mortal disease—cancer. This decision was reached without any microscopical examination whatever.

The specialist comes on the scene, slices off a bit of the proliferated tissue and sends it, for examination by the microscope, to the acknowledged father of cellular pathology, Virchow. This was more than a month after the German doctors consulted.

Well! What comes of Virchow's examination? Nothing. He didn't know anything about what it was; or, if he did, he expressed his views in such ambiguous terms and language that his results would quite easily fit either way, and no one knew exactly what real conclusions he did arrive at.

The very perfection of improved vision to which the microscope has brought us has, no doubt, worked much mischief with those operators who rely mainly on its revelations for guidance in diagnosis.

Supposing we do find epithelial hyperplasia with rudimentary embryonic cells, or in another situation the real alveolar structure of malignant disease, must we frighten our patient to death with the announcement that he has cancer? And even if he is so stricken, must we fold our arms and see his malady rapidly sapping and vitiating his vitality without at least making a bold effort to head it off or temporarily arrest its progress?

Pathologists designate tumors homœoplastic or heteroplastic, homologous or heterologous, according to the tissue elements of which they are composed. The term homologous means that the growth is made up of elements similar to the organ or part of the body from which it sprung; heterologous implies that it possesses tissue foreign to that from which it started.

Now, it may seem paradoxical and absurd to so speak, but there really is not, in its fullest sense, such a thing as a foreign or heterologous growth in the human body.

Green* says, "Every pathological element has its physiological prototype." Hence every deviation from normal form or size is attributable, not to the introduction from without of any new element, but to deranged physiological action. Nothing is elaborated in the body in the most chronic and painful or lingering diseases which can not be found in a person in perfect health. This is quite necessary to bear in mind in dealing with new formations. There is scarcely a tissue but may at some epoch of life

become the seat of adventitious growths, that of which the nerves and brain are composed being most rarely invaded.

Of the organs most frequently attacked and tissues involved in the female are the breast, uterus, and ovary; in the male, the œsophagus, rectum, tongue, and lip. Of tissues, the epithelial, mucous membrane, and cutaneous in one variety of cancer; the parenchyma in cancer of organs. Sarcoma has a special predilection for connective tissue. Of the whole glandular system, the lymphatics are most frequently the seat of enlargement and infiltration. Why this is so does not seem clear, though there are many theories. Some attribute it to their remarkable faculty for absorption, and maintain that they take to themselves and store up in their parenchyma all the deleterious elements abounding in the system.

This will not explain it, though it may in a measure when we speak of cancer, syphilis, and serofula or tubercle. But there are many well-marked dyscrasias in which they escape any taint, as in sarcoma, scurvy, pulmonary tuberculosis, and many others.

The lungs, of all the organs, are most rarely the seat of malignant hyperplasia, though it seems rather remarkable that with their constant and unceasing action we seldom find in their composition, except in the bronchial glands, anything undergoing tissue hypertrophy.

So-called benign growths may at times become malignant or menace life by their size and situation, as with the thyroid gland or with an enormously enlarged uterine fibroid. Some of those neoplasms are not very sensitive, and give no pain except by their impinging on a nerve-trunk or greatly stretching adjacent parts, while others are extremely painful from the beginning.

The malignancy of a growth can not always be estimated by this symptom of pain, though its presence, when of long duration and of a cumulative character, is a cause of much anxiety, and, taken with other indications, is of considerable diagnostic value. Pain is said to be always a warning of the economy that something is going wrong, that a morbid action has commenced. This is undoubtedly true in a general way, but there are so many exceptions to the rule that one may be in doubt whether it is well to place too much reliance on it while there are so many neoplasms in which it may be entirely wanting. It is notorious that with the variety of cancer which for its peculiar histological elements is designated sarcoma there usually is no pain of any moment. I recently had a practical proof of this in a man from whom I removed the left lower jaw for infiltrating round-celled sarcoma. From the beginning of his complaint, which ran a rapid course, he had no pain, and its absence led his family physician to strongly doubt the presence of any malignant disease till the scalpel and microscope satisfied him.

The entire jaw bone, the inferior maxilla, from the symphysis to the articulation, was diseased and broken down, but from the time he first became conscious of any trouble he said he suffered very little. Again, scirrhus epithelial cancer, which usually kills by slow torture, in some situations is entirely devoid of any pain whatever. This, too, was

* "Pathology," ed. ii, p. 37.

well illustrated in a man whom I was recently called to see in consultation.

He had a large nodular growth at the pyloric orifice of the stomach, and was rapidly breaking down from lack of nourishment and disordered digestion, but had no inconvenience whatever from this new epithelial formation, and would not have known it was there if his attention had not been called to it. This absence of pain is noticeable very often in malignant disease of the viscera. It is strikingly so with cancer of the kidney, œsophagus, liver, and stomach.

It is only when on or near the surface of the integument or a mucous membrane that cancer causes very great agony. However, with innocent growths there may be now and then great pain. Hypertrophy of the papillæ at the meatus urinarius of the female is frequently attended with intense distress, and when not relieved may seriously jeopardize health.

An instance, too, of this came under my notice some time ago wherein a young woman, recently married, was infected with gonorrhœa by her husband. She was treated in the usual way for this, but when the discharge ceased and the inflammation subsided she suffered the greatest kind of torture on urinating. Not that she had to empty the bladder often, as in cystitis, but when evacuating it the pain was dreadful. I knew that this condition was no ordinary concomitant of gonorrhœa, and examined her, when I found, not the condylomata of syphilis, but two or three of those vascular, warty growths just within the urethral orifice sometimes found as a result of the long-continued acrid discharge of gonorrhœa. After they were cut out and the part was cauterized her trouble ended as if by magic.

Many of us have an every-day reminder of the annoyance of those little excrescences called corns, which will not infrequently inconvenience one as much as the gout.

The period of life at which tumors grow and thrive best is somewhat variable, though it may be fairly set down as middle age; at that time at which the vital energies begin to ebb, when degenerative changes are most active, when the hair begins to grow gray and thin, the teeth decay, the muscles lose their earlier tonicity, the arteries ossify, the skin begins to wrinkle and atrophy, and the body grows fat. Usually at this stage less sleep is needed than formerly.

The waste is now more rapid than repair, and, as far as physical strength and vigor go, man, at forty-five or fifty, has seen his best days; some, of course, earlier, and some later, but this rule will stand when we are corporeally considered.

With the mind it is quite different, as we often see the lamentable want of harmony here—this active and buoyant, while the body is rapidly breaking up.

At this epoch of life, and later, normal processes seem to lose their balance or equilibrium, as it were, and the economy sends into diseased or morbid growths which may now appear ample nutritive materials to nourish the whole body, and we witness the ceaseless waste which, unhappily, we are only too often unable to arrest or retard. The body is starved that a useless appendage may thrive; and, even when finally the digestive organs give out, the neoplasm keeps up its ravages till it has at last left the skeleton bared

of everything but ribbon-like muscles and a shrunken, attenuated skin.

While new formations are most frequently encountered at or after the meridian of life and in all conditions, still there is no question but they are markedly influenced by race, age, climate, occupation, and diet.

Strumous growths in the joints and glands are met with chiefly in childhood.

It will be noticed here that I retain the old nomenclature, and do not, as is the custom of the day with most pathologists, classify these as tubercular, for in many of the diseased glands no bacillus is found, and, besides, I believe that this classification has worked much confusion and accomplished more ill than good.

It may be argued that as the bacillus is usually found in the gland, hence the pathological condition should be designated tubercular.

It seems to me just as logical to set every case of simple enteritis down as cholera, because occasionally the microscopist encounters the genuine comma bacillus in the excreta of this bowel trouble.

It would seem best, in this instance, to adhere to the older clinical classification in this species of malnutrition, for we all know, as we always recognized it, that tuberculosis is practically an incurable disease, whereas scrofula, on the other hand, in various degrees and forms, is as peculiar to childhood as measles or varicella, and is readily curable.

Some of the most vigorous and hardy individuals we meet carry the scars of this malady. Hence, though the tubercles of scrofula and pulmonary phthisis are similar and the microbe of each is identical, they differ very widely in their clinical aspects.

I have often thought that the confounding of both as the same, from a clinical point of view, has led to much needless mutilation, especially in dealing with diseased bone.

Sarcoma in youth is rather infrequent, but when met with is terribly malignant, running a very short course.

Syphilitic tumors or glandular enlargements from specific causes may be seen at any age after the contagion is acquired.

The testes are a common seat of this infection and sometimes attain great size, and to one unfamiliar with the pathology of this malady it will be difficult to decide whether or not the enlargement may not be attributable to malignant disease. The testes here are strangely devoid of pain on severe pressure, though, if the patient denies the disease, or there is a strong suspicion, a mercurial course will easily decide the matter. Senn,* in his article on surgical bacteriology, tells us that, if we are in doubt as to whether a given lesion is syphilitic, cancerous, or tubercular, the question can be readily settled by inoculation. This is denied by Cohnheim, but the experiment is so simple that it is worth trying, at any rate.

There is an undoubted connection between certain occupations and habits in the production of neoplasmata. It is generally agreed among the English surgeons that cancer of the scrotum is quite peculiar to chimney-sweeps; and when

* "Transactions of the American Surgical Association," p. 212.

we see cancer of the lip and tongue rarely except in the male sex and in smokers, we must, I think, admit that tobacco has something to do with its development—that it is an exciting cause at least.

We are told that the malady is never seen among natives of the South Sea Islands, be their parents natives or Europeans, and that strumous enlargements are not met with in the primitive tribes of North American Indians.

While malignant formations are very infrequent among the African negroes, their women are often afflicted with uterine fibroids.

Darwin and Huxley tell us that no kind of adventitious swelling is often met with in the lower animals in the undomesticated state, or in the uncivilized races of man, but that, when their surroundings and habits change, they soon begin, in common with other beings under similar influences, to show signs of local degeneration.

It would seem that the presence of these neoplasmata is one of the many penalties we must pay for our advanced civilization.

Would it not, indeed, seem absurd to argue to the contrary, to deny that overfeeding with highly nitrogenized food, little or inadequate exercise; "living to eat, not eating to live"; alcohol drinking, in the way of wines, beer, and stronger spirits; venereal excesses, legitimate and illegitimate; residing in the modern city apartment-house, caged and cornered, without ample light or air, like the animals of a menagerie, and with the now almost universal habit of deliberate poisoning of the body with tea, coffee, and tobacco—can it be wondered at, then, that in proportion as we ascend the social scale we and our children degenerate, and that one form or phase of this degeneration or process of decay comes in the way of tumors?

We practitioners, who can take a calm, impartial retrospective view, can see the full force and truthfulness of this in our own country, where, without the constant and unceasing influx of the hardy sons of Europe, many industries entailing toil and hardship, it is feared, would languish.

Diet must have an important bearing in determining the kind of growth and its chemical composition.

It has long been known that, in the cervical lymphomata of children, giving too much animal food or too little vegetable is an exciting cause, in addition to the bad ventilation and herding the little ones together in close quarters.

We most frequently find those stony concretions of the bladder in certain districts where there is an excess of lime in the drinking-water, and in those who over-indulge in certain kinds of wine.

There must certainly be some imprudence in diet at times, for the progress of a growth of a given species may be arrested by restriction to a certain regimen.

Every kind of tumor is more frequent in women than in men, and in the single than in the married. Whether this is due to the more confined occupations of the sex and their domestic habits is uncertain. In my experience, the results in treatment are better with them, especially after the menopause. I think this important to bear in mind in giving a prognosis, for a woman's chances of relief are vastly better the older she is, certainly in malignant disease.

Among the early growths in the female, in the order of frequency, the ovarian cyst comes first, which, though devoid of malignant elements, sometimes dangerously threatens health and life by great pressure on surrounding parts and by appropriating from the blood what should go to the body, thereby producing gradual starvation or inanition; for as a growth increases in volume and weight the unfortunate patient emaciates and weakens, till at last the new tenant has won the day.

We can give no rational explanation for the existence of those abdominal tumors. They undergo every kind of metamorphosis in different individuals. At the present time their career is usually cut short by the intervention of the surgeon; and though, if left alone, they usually go on and destroy life, it is evident to any one who has seen many of them and who is familiar with the laws of pathology, that they do sometimes undergo of themselves spontaneous and permanent cure. The process of disintegration in them, in this event, is one of transformation—simply the reverse of development.

Nature goes to work and takes back what she contributed. First, the aqueous elements are taken up by the absorbents; the vessels atrophy and disappear, the sac and loculi contract; the mucous, mucoid, fibrous, and connective-tissue elements undergo fatty metamorphosis, this in turn liquefying, and thus, in the course of time, the whole of this enormous accumulation has dwindled out of sight.

This same process often takes place in every kind of cellular hyperplasia.

I read the report recently of a case bearing so directly on this part of our subject that I can not forbear quoting it here.

It was an ovarian case published by the French surgeon * Maingault. He tells us of a woman on whom he was called to operate for an ovarian cyst. When he made the opening incision and exposed the tumor, he found a gravid uterus. He decided it unsafe under the circumstances to continue the operation, and sewed up the wound. She was confined three months later, when it was noticed that the ovarian swelling was much diminished in size. Six months after parturition Maingault again examined her and could find no trace whatever of a morbid enlargement. Two years later she died of pneumonia, when at the autopsy the same surgeon could find no evidence of there having been a tumor, except the presence of a small knotty cicatrix extending from the stroma of the ovary into the broad ligament.

I believe a very large number of cases of cystic degeneration undergo spontaneous cure, especially those in advanced life, by the process of retrogression. Nature will sometimes work wonders in this direction.

As it is not within the scope of this discussion to touch on treatment, except inferentially, I will not stop to dwell on what can be done with the intelligent and judicious use of medicines in dissipating many of these formations.

The question has been debated with considerable spirit as to whether or not certain hyperplasiae owe their origin to the mental state, to psychological influences, some

* "Nouv. élém. de méd. et de chir. opér.," Paris.

maintaining that they have seen too many instances directly connected with great tension of mind to regard them as mere coincidences; others, on the other hand, go great lengths to prove the contrary by showing that malignant disease finds its way into the circles of the wealthiest and apparently happiest as well as into the laborer's domicile.

From what I have seen, I must incline to the latter view, though I do think that frequently there is a direct and positive connection between the development of cancer and the state of the mind.

We by all odds find it most frequent in the morose, phlegmatic, and melancholy, and rarely in the gay, cheerful, and buoyant; in fact, in the opposite to those afflicted with tuberculosis, who are usually to the last hopeful.

Though I can not subscribe to the mental condition as a cause of development, I can not say this with respect to its effects on the progress of the disease.

I have seen the fiery heat of a large, fungous, sloughing cancer choked off more than once, as if by magic, by the mere touch of the hand. No one will deny the efficacy of happy and hopeful mental impressions in many of those neoplasms.

We have authentic records of the king's evil, as scrofula was called, because of the manner in which this affliction was once cured by the royal touch. It would really seem that those nomadic, itinerant cancer quacks now and again relieved a case which men who have reached the very summit of fame in their profession had given up as hopeless.

The tumors which they get the greatest credit for curing may not have been of a malignant type; but even if they are not, we see enough in them, and the manner in which they are disposed of, to satisfy us that the relation between mind and matter, mental influence and tissue metabolism, is positive, distinct, and indisputable.

Every kind of emotion, without question, exerts a most remarkable effect in many of the neoplasms or tumor-like formations.

The mention of the knife with the thought of shedding blood will often terrify a sensitive person.

In those large, bulging, inflamed hæmorrhoids at the anus where we have tried every expedient short of strangulation, injection, or excision, but without good results, after we speak of operation—which is usually promptly rejected—fear produces wonderful effects. In one night I have seen the whole mass disappear. On more than one occasion I have seen this phenomenon where ocular evidence was obtainable.

It may be said that this can be readily explained on the theory that the sphincter relaxed and permitted the protrusion to disappear up the bowel.

To satisfy myself on this point, I have several times taken the rectal speculum and explored the mucous lining in search for them, but without result.

Nothing whatever remained but the shrunken, withering stalks, which disappeared in a few weeks, leaving no trace of the original lesion.

Like all other ills and ailments of man, those morbid growths are frequently hereditary, and, everything being

equal, they are most likely to occur in the progeny of those who had been similarly afflicted themselves.

Family resemblance is transmissible, as all family traits, virtues, vices, and habits are. We can often recognize a member of a family by his peculiar gait, the poise of his head, or quality of his voice, so that it is but a natural corollary that he should likewise inherit the tendency to malignant disease in the way of new formations. Of course, if our habits, circumstances, surroundings, and climate are different from those under which our parents were bred, so shall we differ vastly in our physical make-up and constitution from them and escape in a measure their infirmities of mind or body, or acquire others of a kind to which they were strangers, so that in this way many escape the effects of heredity.

When we are in doubt about the nature of a sore, however, and there is a distinct family history of a similar taint, it is good confirmatory evidence.

The ætiology of new formations is of far-reaching importance, as it should have a decisive bearing on prognosis and treatment; but, strange to say, we are to-day as much befogged in the matter of causation as ever. Science has been able to assist us here only to a very limited extent.

Are cancerous growths in their beginning due to a local irritation or traumatism, or is there not always, before any outward manifestation of them is seen, thorough systemic infection, giving rise to what is called the cancerous cachexia?

From long and careful observation and the perusal of the works of authorities, ancient and modern, new and old, there seems to be but one conclusion which we can come to in this matter: it is that the disease is always constitutional, usually transmissible, and by no means yet discovered curable.

In some people its energy is spent on an ulcerating sore; this lesion the consequence, not the cause. This will destroy life in itself through pain and drain.

A surgical operation for the removal of the growth will undoubtedly very often give one many additional years, but to effect a cure in its broadest sense—never.

The system is thoroughly saturated with the dire disease, and art is often powerless. How the surgeon will decide the matter as to intervention with the knife belongs to treatment—something very important, which I will not enter into other than to say that it is altogether a different matter now to what it was in the early part of the present century and before it, when so many died of pain and hæmorrhage on the operating-table, while to-day, with our perfect anæsthesia and ready methods of controlling hæmorrhage in any part of the body and with the use of antiseptics, we may, with reasonable safety, remove almost any kind of new formation without imperiling life.

Tumors of every kind grow not unlike the body—*i. e.*, they sometimes develop rapidly, occasionally very slowly, and not seldom halt, remaining quiescent until they move on again. Many undergo no change in size or appearance for years. Many of the congenital blemishes—such as the nævus and port-wine mark—undergo no visible changes throughout life, though the natural history of every tumor embraces its

transformation or, as it is usually termed, disintegration or obliteration.

The elements slowly take on calcareous or fatty changes, possibly inflammatory and purulent. This latter is the most speedy process. The surgeon will often induce by art changes of structure, ending in the involution and disappearance of the tissue hyperplasia.

This metamorphosis of the molecular elements of a tumor undergoes every kind of mutation, which will occasionally lead to relief or cure, but unfortunately, in certain structures, tends to destroy life. This is seen in the atheroma of arteries, when their coats become the seat of fatty or ossific changes, ending in a dilatation of their lumen, aneurysm, or a bursting of the vessel itself, which, if occurring in the brain, usually ends in death.

This process of degeneration is often met with in connection with development itself, as we so often witness it in connection with ovarian cysts of the multilocular variety, where, while in one loculus or compartment we find mucous, in another serous, in a third dish-water-colored liquid, and again in a fourth, fatty changes commencing.

All this points most beautifully to the great diversity of phenomena of pathological action going on simultaneously—the developmental and processes of decay, each seeming, as it were, to win the mastery.

When spontaneous disappearance of one of those neoplasms does occur, there is no doubt but the first organized tissues to become affected are the blood-vessels, probably becoming affected in a manner not unlike the cessation of the circulation in the umbilical cord at birth.

This gradual diminution of the volume of the blood-current proceeds, probably, from the deeper vessels to the surface capillaries, and from the center toward the periphery.

While the sanguineous supply is being reduced in this manner, the absorbents are actively at work; and the chemistry of pathological transformation, sometimes gradually, again with great rapidity, mummifies, liquefies, and dissipates the remnant or *débris*.

The medical attendant, in imitating this process so wonderfully elaborated by the economy, at one time accomplishes his purpose by making his attack direct through surgical methods; again he will attain the same end, if a well-trained and observant physician, by the aid of change in surroundings, climate, diet, and the intelligent use of electricity and drugs, etc.

It has been curiously noticed that the victims of malignant growths are seldom stricken by prevailing epidemics or maladies peculiar to the changing seasons; but when they are it is said the effect is most salutary, often staying pathological changes indefinitely.

As a rule, independent of the seat of the malady itself, the organs are usually healthy, and the patient expresses himself as being as well as ever if only freed from the localized affliction.

It has been a mooted question what relation the social state as regards marriage or celibacy bears in the production or predisposition to tumors.

No one, I think, conversant with the normal physiologi-

cal phenomena of the female generative system, and who has observed the profound and beneficent effects of maternity, will deny that it seems something more than probable that in the well-developed, hale, and hearty maiden of amative propensities, well fed, and permitted the unrestrained society of the male sex, the prolonged absence of copulation and the penalty enjoined by nature for not giving reasonable vent to pent-up passions may be, and often is, a disordered state of the organs of nutrition, and especially those of the reproductive functions, resulting in a surplus of the formative elements which is made manifest in the way of morbid growths.

Since marriage has been so abused and it has become unfashionable to have large families, it is hardly to be wondered at that the ovary and uterus are so frequently the seat of degenerative changes.

Now, with regard to the tissues which are most liable to transformative changes ending in degeneration, the form, habitat, chemical, histological, or pathological constituents of the various neoplasms—to go into each of them in detail more than has been done would carry us much further than the limits of this essay was intended to reach.

However, in closing, it may be well to epitomize and recapitulate some of the leading features of those growths oftenest seen.

The cancer of former times, the early part of the present century, is now classified in two divisions—the one called cancer proper, which includes all epithelial growths wherever found; and the other designated sarcoma.

In one respect they both are identical: they are both fatal. Sarcomatous growths are quickly and fearfully destructive.

The diagnosis of each may be arrived at with considerable degree of certainty by the clinical history and a competent knowledge of the ætiology of each.

Sarcoma is generally a disease of early age, is seldom accompanied with much pain, and always confines its ravages to the connective tissue at the outset. It is disseminated by the blood-vessels, and, I believe, the *genuine article* invariably returns after enucleation. Microscopically, it is distinguished from true cancer by the shape and arrangement of its cellular elements.

Carcinoma, on the other hand, oftenest comes late in life, and seems to have a predilection for the epithelial elements, when it is known as epithelioma.

In the male, as already stated, the lip, the œsophagus, the tongue, and the rectum are the most often attacked by new epithelial formation.

In the female, the uterus, the mammary gland, and stomach seem specially to invite its attack.

No doubt in epithelial cancer we may stay its progress by operation, but it is doubtful that by any means at our command we can cure it.

The malignant and non-malignant tumors may, by their size and situation, seriously imperil health and life itself, as with a scirrhus of the œsophagus or rectum—the one by shutting off the necessary supply of food and embarrassing breathing, and the other by preventing the free egress of fæces.

The enlarged fibroid, by its great volume, may become a source of distress and annoyance.

Any vessel or duct in the body may have its lumen narrowed or obliterated by these enlargements, which spare no tissue in the body, and, unfortunately, when this does occur in malignant neoplasms, often nothing can be done, as, owing to their invariable tendency to infiltrate, invade, and compromise the integrity of adjacent parts, they can only seldom be displaced.

In innocent tumors, when their cyst-walls have inflamed and contracted extensive adhesions, their enucleation may be attended with great difficulty.

Finally, I think we may summarize as follows:

1. That, of all animal creation, man is most frequently the victim of malignant tumors.

2. That the malignant variety leads toward death, though, by intelligent surgical intervention, life may be prolonged.

3. That, while we know a benign growth may undergo malignant changes, the reverse is seldom known to take place.

4. That habits, diet, climate, environment, and heredity are undoubtedly active factors in causation.

5. The benign, particularly of the skin, remain through life, though they may disappear spontaneously, and they too may be the starting-point of dangerous disease.

6. There are many which develop only in certain organs or tissues—the so-called homologous, which, under certain circumstances, undergo atrophy, or cease to grow.

7. The effect of psychological and physiological influences on the arrest of progress and obliteration of neoplasms is so often seen that it must be admitted.

8. In the diagnosis the clinical history alone is often ample to decide the true nature of the formation, the bacteriological and microscopical revelations being contributory evidence only in themselves, not to be too much relied on.

9. As many tumors arise from defective or perverted nutrition and imperfect metabolism of tissue, they may and should be dealt with by constitutional measures.

10. When, however, it appears that medicine makes no impression, the knife should be recommended early, as at the present time—when modern surgery has reached such perfection that with anæsthesia all pain is avoided, with antiseptics purulent infection prevented, and with the aid of the modern clamp-foreeps and temporary transfixion ligature hæmorrhage impossible—an operation is stripped of all its former horrors and dangers, and can be at least recommended if for no other purpose than the relief of pain and further extension of life.

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Uralium.—“The latest of hypnotics, ‘uralium,’ is produced by the combination of chloral and urethan. It is prepared by Signor Gustavo Poppi, of Bologna, a medical student, who declares with all the ardor of youth that it is the best of hypnotics. . . . No doubt the ammonium base of the urethan may counteract in part the depressing action of the chloral, nevertheless the new hypnotic does not recommend itself to us.”—*Dublin Journal of Medical Science.*

THE TIME REQUIRED IN THE STOMACH DIGESTION OF DIFFERENT FOODS IN INFANCY.*

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THE digestibility of foods was for a long time judged by the time required for their disappearance from the stomach. The less time a food requires for that object, the more easily digestible is it. I only mention, for example, the scale of digestibility built upon this principle by Beaumont and Richet, which is cited as standard in Ewald's † book, “Klinik der Verdaunungskrankheiten.” Although we know that the digestion of food is only partially performed by the stomach—the greater part being done by the intestines—still, the time of retention of food in the stomach is of importance. Besides the work the stomach performs in real digestion, it has an additional task—to prepare the substances contained in it for their entrance into the intestines, and to convert them into a condition suitable to those circumstances. Therefore, the less time occupied by a substance in leaving the stomach, the quicker must it have been converted into that condition. Thus this substance is, so far as concerns the stomach, more easily digestible.

Whereas for adults the normal time of stomach digestion for the most different substances has been determined by many authors, there has as yet been very little done in this respect for infants. Still, the question as to the time of stomach digestion in infants is of great importance, for, whereas, on the one hand, the answer to this question is closely associated with that of how often an infant ought to be fed, on the other hand, the knowledge of the length of time that the various infant foods remain in the stomach is especially important as an indication of the digestibility of these foods.

These points of view decided Dr. J. Rudisch and myself to undertake some investigations regarding the stay of different food materials in an infant's stomach; but, as my colleague and friend has been too busy with his practice, I was forced to take up the work, in fulfilling our mutual idea, alone.

The proposed question I have investigated, thus far, only in infants of the earliest age (three to nine months old). The food materials which were considered in our investigation were:

A. Mother's milk.

B. Cow's milk: *a*, undiluted; *b*, diluted with water; and *c*, diluted with barley-water.

C. Artificial infant foods: *a*, Nestlé's milk food; *b*, malted milk; *c*, Carnrick's soluble food; and *d*, Mellin's food.

The investigations were pursued in the children's ward of Randall's Island Hospital, and I am indebted to Dr. Simmons, Dr. Maxwell, and Dr. McCready for their kind permission.

* Read by title at the fortieth annual meeting of the American Medical Association.

† Ewald, “Klinik der Verdaunungskrankheiten,” i, p. 95.

The only statements found in literature on our subject are those of H. Leo,* and treat of the stay of mother's and cow's milk in an infant's stomach. Leo briefly states that one hour after milk feeding, the stomach, in infants a few weeks old, is already normally empty; in somewhat older infants the milk is retained a little longer, the maximum time being an hour and a half for breast-nursed infants and two hours for infants fed on cow's milk. There are no further remarks on this subject, so far as I am aware.

The course of the investigations made was as follows: First, we determined, in a number of healthy breast-nursed infants, in how long a time after the last nursing the stomach became empty; then a number of artificially fed infants were selected, all of them well as regarded their stomach; only two of them lacked somewhat in bodily development, the others being perfectly normal. In these infants, on different days, several food materials were examined with reference to the time of their stay in the stomach. During the days of examination the infants had the usual food of the institution; three hours after the last feeding, usually between five and six o'clock A. M., the infants were fed with the substance to be investigated, and were examined one to two hours afterward with the stomach tube (consisting of a Nélaton catheter, No. 14 A).

Allow me, gentlemen, to describe more fully the *modus operandi*. The introduction of the stomach tube is very easily performed. I have found it more convenient to examine the infant in the recumbent position. A towel is spread around the chest and arms of the child and easily held by the nurse (in this way the child is prevented from interfering with its arms during the procedure). Thereupon the tube is pushed with its oval end into the mouth of the infant. Usually, the child begins to suck and to accomplish several swallowings; both these circumstances facilitate the introduction. One need only push the tube farther into the mouth (without putting his finger into the child's mouth), and it goes quickly through the œsophagus into the stomach. Sometimes the children cry and do not like to suck the tube; the procedure is then somewhat more difficult. You then introduce the left index finger into the child's mouth until the regio epiglottica is reached, slightly depress the back of the tongue, and guide the tube with the right hand along the forefinger and a little to the left. If the child cries or makes a deep expiration, the tube will often encounter resistance at the introitus œsophagi; in this case it is necessary to wait until the child makes an inspiration; then the tube easily goes through the œsophagus and enters the stomach.

The stomach, as well as the other abdominal contents, is under positive pressure during expiration. But, the cardia being slightly closed and the walls of the œsophagus pressing upon each other, the occlusion is thus increased, even during expiration, by the circumstance that by the diminution of the thoracic space a pressure is exerted on the outside walls of the œsophagus. In this way, normally, notwithstanding the pressure exerted on the stomach during expiration, nothing of its contents can come out; but as

soon as there is a communication made by the introduced tube between the stomach and the outside world, any fluid in the stomach will, during a forced expiration, seek the place of less pressure, and will thus make its appearance. Ewald's expression method in adults is founded upon this principle. In infants, the undiluted stomach contents can be obtained in the same way. The expirations of the child are usually sufficient to bring up the stomach contents; but, if the spontaneous expirations of the child exert too weak a pressure to force the contents out, one can make the child cry, and thus increase the expirations and the pressure. After a few seconds the stomach contents, if such exist, always appear. If, in spite of the child's crying, nothing comes out after about a quarter to half a minute, the stomach, as a rule, is empty, or there may exist only traces of contents. One can convince himself more fully whether the stomach is empty or not by blowing air from his own mouth through the tube into the stomach of the child. If there is fluid present in the stomach, the air, striking through and above the fluid, causes a rising of bubbles, which when bursting give a gurgling sound audible to the observer. If there is no fluid in the stomach, one can hear the air striking the stomach walls, but without producing any such sounds. In this way it is possible, without washing out the stomach, to determine whether it is empty or not.

According to the method described I always proceed in making these investigations.

Although the chief object of this investigation was to determine how long after feeding it took the stomach to become empty, or whether after two hours there were yet some contents present; notwithstanding, as a secondary matter, observations were always made upon the physical and chemical qualities of the undiluted stomach contents. Every food to be investigated was given upon two different days to the same children. On the first day the stomach of one part of the infants was examined an hour to an hour and a half after the trial feeding, whereas in the other part the examination was pursued an hour and a half to two hours after the feeding. On the second day the examination was performed just in the same manner, with the only difference that the succession was inverted; in this way all infants were examined once an hour to an hour and a half and the other time an hour and a half to two hours after the feeding. The time counted from the beginning of the trial feeding to the introduction of the tube was always accurately stated and determined, whether the stomach was found empty or not.

The food materials undergoing the investigation were always given in the same quantity—viz., four ounces. As to the artificial food substitutes, the preparation was made according to the receipt accompanying them.

When contents were found in the stomach they were examined for their physical condition; then they were filtered and investigated as to their reaction (acid or not) and as to the presence of free hydrochloric acid; sometimes also as to the presence of lactic acid, propeptone, peptone, and the rennet ferment. As soon as the quantity of the filtrate was sufficient, the degree of acidity was determined. As usual, the determination of the degree of acidity was accomplished

* H. Leo, "Berlin. klin. Wochenschr.," No. 49, 1888.

I. HUMAN BREAST MILK.

NAME.	Age.	Date.	Time since last feeding.	Stomach contents.	Condition of the coagula.	Reaction.	Acidity.	HCl.	Lactic acid.	Propeptone.	Peptone.	Renet.	Observations.				
1. Braun	6 mos.	9, v, 1889.	h. m.	+	Pretty fine.	Acid.	—	0	+	+	+	+	Congo paper gets dark blue.				
			1 10														
2. Totten	5 mos.	10, v, 1889.	2 0	+	Fine.	Acid.	30	0		+	Traces.	+		The mother refused the examination of the child.			
			1 0														
3. Williams	3 mos.	9, v, 1889.	2 0	+													
			1 15														
4. O'Brien	7 mos.	9, v, 1889.	2 0	+	Fine.	Acid.	10	0	+	+ little.	0	+					
			1 0														
5. O'Mara	9 mos.	9, v, 1889.	2 0	+	Pretty fine.	Acid.	15	0	+	+ little.	Traces.	+					
			1 10														
6. Weiss	7 mos.	9, v, 1889.	2 0	+	Thick.	Acid.	20	0	?	+	+						
			1 20														
7. Smith	7 mos.	9, v, 1889.	2 0	+													
			2 0														
8. Commencint	4 mos.	9, v, 1889.	1 0	+	Fine.	Acid.	6	0									
			1 0														

II. COW'S MILK AND BARLEY WATER (āā).

1. Hammer	6 mos.	11, v, 1889.	1 0	+	Thick, not coherent.	Acid.	20	0	+	+	?	+
			1 45									
2. Rickers	6 mos.	11, v, 1889.	1 0	+	Very little.	Acid.	—	0				
			1 0									
3. Bernstein	9 mos.	11, v, 1889.	1 0	+	Thick & somewhat coherent.	Acid.	35	0	+	+	+	+
			1 50									
4. Doraw	3 mos.	11, v, 1889.	1 0	+	Traces	Medium.	Acid.	30	0	+		
			1 55									
5. Jackson	2 mos.	11, v, 1889.	1 30	+	Medium.	Acid.	—	0				
			1 50									
6. Smith	7 mos.	11, v, 1889.	1 30	+	Traces	Fine.	Acid.	20	0	+	+	+
			2 5									

III. COW'S MILK AND WATER (āā).

1. Hammer	6 mos.	14, v, 1889.	1 20	+	Traces	Medium, a little coherent.	Acid.	15	0		+	+ traces.	+	A piece of greenish mucus.	
			45												
2. Rickers	6 mos.	15, v, 1889.	45	+	Medium, a little coherent.	Acid.	15	0		+	+	+ traces.	+		
			45												
3. Bernstein	9 mos.	14, v, 1889.	1 20	+	Very little.	Thick.	Acid.	0							
			1 25												

IV. COW'S MILK.

1. Hammer	6 mos.	16, v, 1889.	1 15	+	0	Thick.	Acid.	—	0			
			1 25									
2. Rickers	6 mos.	16, v, 1889.	1 15	+	0	Thick.	Acid.	—	0			
			1 24									
3. Bernstein	9 mos.	16, v, 1889.	1 20	+	+	Thick.	Acid.	—	0			
			1 20									
4. Doraw	3 mos.	16, v, 1889.	1 20	+	+	Thick, somewhat coherent.	Acid.	—	0			
			1 20									
5. Jackson	2 mos.	16, v, 1889.	1 25	+	Little.	Thick lumps.	Acid.	—	0			
			1 0									
6. Smith	7 mos.	31, v, 1889.	1 0	+	+	Quite fine.	Acid.	40	0			
			1 0									
7. Taylor	6 mos.	31, v, 1889.	1 0	+	0	Fine.	Weakly acid.	—	0			
			1 0									

V. NESTLE'S MILK FOOD.

NAME.	Age.	Date.	Time since last feeding.	Stomach contents.	Condition of the flour.	Reaction.	Acidity.	HCl.	Lactic acid.	Propeptone.	Peptone.	Renet.	Observations.			
1. Hammer	6 mos.	17, v, 1889.	1 15	+	Fine.	Acid.	10	0					Congo-paper turns blue.			
			2 10													
2. Rickers	6 mos.	17, v, 1889.	1 20	+	Fine.	Acid.	10	0	+	?	0	+				
			2 0													
3. Bernstein	9 mos.	17, v, 1889.	1 25	+	Medium.	Acid.	40	0	+	+	+ much	+				
			2 15													
		20, v, 1889.	2 10	+	Medium.	Strongly acid.	50	0			+	+				
			2 15													

V. NESTLE'S MILK FOOD—(Continued).

NAME.	Age.	Date.	Time since last feeding.		Stomach contents.	Condition of the flour.	Reaction.	Acidity.	HCl.	Lactic acid.	Propeptone.	Peptone.	Ren-net.	Observations.
			h.	m.										
4. Doraw.....	3 mos.	{	17, v, 1889.	2 0	+	Fine.	Acid.	8	0		+	+		
			20, v, 1889.	1 50	+	Fine.	Acid.	15	0	+				
5. Jackson.....	2 mos.	{	17, v, 1889.	2 0	+	Medium.	Strongly acid.	60	0	+	+ much	+	+	
			20, v, 1889.	1 55	0									
6. Smith.....	7 mos.	{	17, v, 1889.	2 0	0									
			20, v, 1889.	1 50	0									

VI. MALTED MILK.

1. Hammer.....	6 mos.	{	21, v, 1889.	2 0	0									
			22, v, 1889.	1 15	+	Fine.	Acid.	20	0					
2. Rickers.....	6 mos.	{	21, v, 1889.	2 0	0									
			22, v, 1889.	1 15	+	Fine.	Acid.	25	0		+	+	+	
3. Bernstein.....	9 mos.	{	21, v, 1889.	2 10	+	Fine.	Acid.	30	0	+	0	+	+	Congo turns blue
			21, v, 1889.	1 20	+	Fine.	Weakly acid.	—	0					
4. Doraw.....	3 mos.	{	22, v, 1889.	1 50	+	Medium.	Acid.	20	0		+	+	+	
			21, v, 1889.	1 25	+	Thick.	Strongly acid.	40	0	+	+	+	+	The cont'nts look like water with pieces of roll swim'g in them.
5. Jackson.....	2-3 mos.	{	22, v, 1889.	1 55	+	Thick.	Acid.	45	0		+	+	+	
			21, v, 1889.	1 20	+	Fine.	Weakly acid.	8	0	+	Traces.	0		
6. Smith.....	7 mos.	{	22, v, 1889.	1 50	0									
			21, v, 1889.	1 15	0									
7. Sullivan.....	7 mos.	{	21, v, 1889.	1 15	0									

VII. CARNRICK'S SOLUBLE FOOD.

1. Hammer.....	6 mos.	{	23, v, 1889.	1 15	+	Thickly coherent.	Weakly acid.	—	0		Traces.	+ traces.	+	
			25, v, 1889.	1 55	+	Fine.	Acid.	30	0					
2. Rickers.....	6 mos.	{	23, v, 1889.	1 25	+	Thickly coherent.	Acid.	—	0		0	+	+	
			25, v, 1889.	1 50	+	Thickly coherent.	Acid.	2	0		?	+	+	
3. Sullivan.....	7 mos.	{	23, v, 1889.	1 20	+	Thickly coherent.	Weakly acid.	25	0				+	
			25, v, 1889.	1 50	+	Fine.	Weakly acid.	—	0					
4. Doraw.....	3 mos.	{	23, v, 1889.	1 55	+	Fine.	Acid.	—	0					
			25, v, 1889.	1 25	+	Fine.	Acid.	20	0		+ little.	+		
5. Jackson.....	2-3 mos.	{	23, v, 1889.	2 0	0									
			25, v, 1889.	1 25	+	Fine.	Strongly acid.	35	0		+	+		
6. Smith.....	7 mos.	{	23, v, 1889.	2 0	Traces.	Fine.	Weakly acid.	—	0					
			25, v, 1889.	1 20	+	Fine.	Acid.	—	0					

VIII. COW'S MILK AND WATER (āā).

NAME.	Age.	Date.	Time since last feeding.	Stomach contents.	Condition of the coagula.	Reaction.	Acidity.	HCl.	Lactic acid.	Propeptone.	Peptone.	Ren-net.	Observations.
1. Hammer.....	6 mos.	24, v, 1889.	1 25	Traces.	Pretty fine and coherent.	Acid.	—	0					
2. Rickers.....	6 mos.	24, v, 1889.	1 20	Very little.	Pretty thick.	Acid.	—	0					
3. Sullivan.....	7 mos.	24, v, 1889.	1 20	0									
4. Doraw.....	3 mos.	24, v, 1889.	1 30	0									
5. Jackson.....	3 mos.	24, v, 1889.	1 35	0									
6. Smith.....	7 mos.	24, v, 1889.	1 30	0									

IX. MELLIN'S FOOD.

1. Hammer.....	6 mos.	29, v, 1889.	1 45	0									
2. Rickers.....	6 mos.	29, v, 1889.	1 20	+	Thick lumps.	Acid.	20	0					
3. Sullivan.....	7 mos.	29, v, 1889.	1 15	+	Medium.	Acid.	—	0					
4. Jackson.....	3 mos.	29, v, 1889.	1 50	+	Thick lumps.	Acid.	50	+					
5. Smith.....	7 mos.	29, v, 1889.	1 45	Traces.		Acid.	—	0					

by means of a one-tenth standard sodium-hydrate solution and phenolphthalein serving as an indicator. The number of cubic centimetres of the sodium solution used to neutralize 100 c. c. of the filtrate give the figure of acidity. I usually took for this purpose two c. c.; I had then to multiply the obtained number of cubic centimetres of the so-

dium solution by fifty in order to determine the degree of acidity.

In testing for free hydrochloric acid we made use of Günzburg's phloroglucin-vanilline reaction, which is the most reliable; * but, besides this, we examined also by means of Congo-paper, and, wherever the results obtained with Congo differed from those with Günzburg's test, we mentioned it in the remarks.

As regards the time in which the stomach digestion is finished, one can not always expect repeated experiments to have absolutely like results, for, on the one hand, there are individual peculiarities of the different infants under observation, and, on the other hand, the condition of the stomach in one infant at different times will show some variations. Our conclusions will be derived from the majority of results achieved.

After these remarks I should like to show you, Mr. President and gentlemen, the tables containing the results of our experiments.

From Table I (human breast milk) it is evident that in all breast-nursed infants the stomach was empty two hours after the last nursing. Probably one would find the stomach empty as early as in an hour and a half, but I could not test this question, because of the refusal of the mothers to subject their babies to a re-examination.

The stomach contents obtained an hour after feeding always had an acid reaction, did not give any reaction for free hydrochloric acid with the phloroglucin-vanilline solution, and showed small degrees of acidity; the figures varied from six to thirty. By means of Congo-paper a positive reaction was found in two (Braun and Totten) of the stomach contents, but this positive result of the Congo reaction must have been due to the acid albuminates or to the lactic acid present in these cases. Propeptone was found in most cases and peptone in some of them. The condition of the milk coagula was in two infants very fine, in three pretty fine, and in one infant (Weiss), which was not very well, thick and coherent; besides this, much viscid mucus was also present in this last case.

Table II (cow's milk and barley water) shows that in from an hour and three quarters to two hours after feeding with a mixture of equal parts of cow's milk and barley water the stomach was found either empty or nearly empty. By "traces" I mean that condition where there were found only a few drops of fluid in the tube. The stomach may practically be considered as empty in such cases. The stomach contents obtained an hour after feeding always had an acid reaction, showed degrees of acidity from twenty to thirty-five, and contained no free hydrochloric acid. Only once did I find in the infant Doraw, an hour and fifty minutes after feeding, free hydrochloric acid in the few drops contained in the tube. The coagula flakes were twice very fine, twice medium, and twice thick.

Tables III and VIII (cow's milk and water, āā) show that in about an hour and a half after feeding with a mixture of equal parts of cow's milk and water the stomach was found empty. Here also we found in the stomach con-

tents a slight acidity, no free hydrochloric acid, and the condition of the coagula flakes various, fine, medium, and in Rickert's thick.

Table IV demonstrates the behavior of undiluted cow's milk. In an hour and fifteen minutes to an hour and twenty-five minutes after the trial feeding the stomach was empty in most of the infants. Free hydrochloric acid could not be detected. In nearly all the infants the coagula were thick, and only in one fine.

Table V contains the experiments with Nestlé's milk food. Two hours, and even a little longer, after feeding, all the infants, with the one exception of Smith, had still a great deal of the food in their stomach. The flour particles were very minute and well distributed. The acidity was relatively high only in Bernstein and Jackson, whereas in all the others it was low (5 to 12). Free hydrochloric acid was always wanting.

Table VI (malted milk). Here we found the stomach empty in three infants after two hours, and in one (Sullivan) after one hour and fifteen minutes, whereas in three other infants the stomach, at the end of the second hour of digestion, was not yet empty. On the second trial day the infants took only half of the food portion given to them. The stomach contents always showed a very minute distribution of the solid particles, only in Jackson (which child was not well at the time) there were somewhat large particles suspended in the fluid; the whole mass looked like water with small pieces of roll swimming in it. The acidity fluctuated from 8 to 45; free hydrochloric acid was not found.

Table VII (Carnrick's food). At the end of the second hour in four infants the stomach as yet was not empty, but contained a considerable quantity of food; in two of the infants (Thompson and Smith) the food had already disappeared from the stomach. The contents showed always a fine, minute distribution of the solid particles, but the same were somewhat coherent in three of the infants. The acidity fluctuated between 20 and 35. Free hydrochloric acid was wanting.

Table VIII (cow's milk and water, āā). These results have already been related in conjunction with those of Table III. The reason why we again took up the investigation of equal parts of cow's milk and water after having examined the artificial infants' foods was in order to demonstrate that the functions of the infant's stomach did not suffer much by the long period of experimentation—*i. e.*, that the stomach did not work slower as regarded the transport of its contents to the intestines—and in order to have in this way a better control. In fact, this time also in all infants the stomach was found empty after an hour and a half.

Table IX (Mellin's food). According to the recipe, the preparation is as follows: Two tablespoonfuls of Mellin's food, a quarter of a pint of water, and three quarters of a pint of cow's milk. The mixture is composed in this way in greatest part of cow's milk, and can not be considered, therefore, as an artificial food. Of the infants examined after an hour and three quarters, two infants had already an empty stomach, whereas in the stomach of the third contents

* Einhorn, "Medical Record," 1888, p. 227.

were present. As regards the condition of the stomach contents, in two the milk was found coagulated in thick lumps, whereas in one the coagula were very fine. Free hydrochloric acid was found in only one, Jackson's.

In making up a short *résumé* of the results obtained in the examination of the stomach contents upon our different trials, we see, first, that even mother's milk can be found under certain circumstances, although very seldom, in a more or less thickened, coagulated condition. The undiluted cow's milk is usually found in thicker coagulated lumps. The diluted cow's milk appears in fine curds, and only occasionally in thicker coagula.

The degree of acidity in the stomach contents was in the milk, as well as in the other food materials, always a low one, and free hydrochloric acid could hardly ever be detected.

The reason why the free hydrochloric acid, although secreted by the stomach—as can be easily seen by the propeptone and peptone formed in the stomach—can not be detected, lies in the circumstance that the albuminates of the milk and of the other food materials combine with the acid to form acid albuminates.

The degree of acidity is not diminished thereby, but the test for free hydrochloric acid will prove negative so long as the latter is not present in sufficient quantities. (One can easily convince himself of this fact in the following way: Add separately to 5 c. c. of distilled water and 5 c. c. of milk 1 c. c. of a one-tenth standard hydrochloric-acid

cretes less hydrochloric acid than that of adults. Leo* likewise remarked the fact that in milk-feeding the acidity of the infants was a low one.

It has usually been the custom to prescribe hydrochloric acid † in derangements of infants' stomachs, because, upon examination of the vomit, no free hydrochloric acid was found. Inasmuch as, according to my observations, there is no free hydrochloric acid present in the normal stomach contents of infants, it will be seen that there is no indication for supplying the supposed absent hydrochloric acid.

In order to quickly understand the time required for the stomach digestion of the different food materials ‡ in the same infants, I made in a comparative table (X), having only reference to the time in which the stomach becomes empty or is yet filled. It is evident from this table that undiluted cow's milk, as well as that diluted with water or barley-water, leaves the stomach in from an hour and a half to two hours, whereas the other artificial food substitutes are still found usually after two hours in the stomach. Milk is in this way the most easily digestible food for infants' stomachs.

Among the artificial food substitutes examined as to the time of their stomach digestion, malted milk seemed to take the first, Carnrick's the second, and Nestlé's food the last place.

As regards the question of artificial infant feeding, since early times mother's milk has been considered as the looked-for ideal; the more we are able to make the food

X. A COMPARATIVE TABLE OF THE DURATION OF TIME REQUIRED FOR THE STOMACH-DIGESTION OF INFANTS IN COW'S MILK AND VARIOUS ARTIFICIAL FOODS.

NAME.	Age.	COW'S MILK (NOT DILUTED).		COW'S MILK AND WATER (āā).		COW'S MILK AND BARLEY WATER (āā).		MELLIN'S FOOD.		MALTED MILK.		CARNRICK'S SOLUBLE FOOD.		NESTLÉ'S MILK FOOD.	
		Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.	Time since last feeding.	Stomach contents.
1. Hammer.....	6 mos.	a. 1 15	0	h. m. 45	+	h. m. 1 00	+	h. m.		h. m. 1 15	+	h. m. 1 15	+	h. m. 1 15	+
		b. 1 25	+	1 25	Only traces.	1 45	Very little.	1 45	0	2 00	0	1 55	+	2 10	+
2. Rickers.....	6 mos.	a. 1 15	0	45	+	1 00	+	1 20	+	1 15	+	1 25	+	1 20	+
		b. 1 25	0	1 20	Very little.	1 50	Traces.			2 00	0	1 50	+	2 00	+
3. Bernstein.....	9 mos.	.. 1 20	+			1 00	+							1 25	+
		..		1 25	0	1 55	0			2 10	+			2 15	+
4. Doraw.....	3 mos.	.. 1 20	+			1 30	+			1 20	+	1 25	+	1 50	+
		..		1 30	0	1 50	Traces.			1 50	+	1 55	+	2 00	+
5. Jackson.....	2 mos.	a. 1 00	+			1 30	+			1 25	+	1 25	+	1 55	0
		b. 1 25	Very little.	1 35	0			1 50	+	1 55	+	2 00	0	2 00	+
6. Smith.....	7 mos.	a. 1 00	+							1 20	+	1 20	+	1 50	0
		b. 1 25	0	1 30	0	2 05	0	1 45	Very little.	1 50	0	2 00	Traces.	2 00	0
7. Taylor.....	6 mos.	.. 1 00	0							1 35	+				
8. Sullivan.....	7 mos.	..		1 20	0			1 15	+	1 15	0	1 20	+	1 50	+

solution; the water will give, with the Günzburg solution, a positive characteristic test for hydrochloric acid, whereas the milk will prove to contain no free hydrochloric acid with the same Günzburg's test. But, if we determine the degree of acidity in the water and in the milk, we find the same greater in the milk than in the water.) From the low degree of acidity nearly always found in the normal infant's stomach, it appears that normally the infant's stomach se-

approximate human milk, the better is it. A priori, the milk of mammals shows in appearance as well as in composition great similarity to human milk. Therefore, very

* Leo, "Berlin. klin. Wochenschr.," 1888, No. 49.

† "Annual of the Universal Med. Sciences," 1889, vol. i, E. 24.

‡ REMARK.—Mother's milk was not added in this table, because the time for mother's milk was taken from other infants being nursed by the breast.

early cow's milk was used as a substitute for human milk. Later on, exact milk analyses were made by different observers, and it was learned that human milk contained less casein and more milk-sugar than cow's milk; furthermore, it was perceived that human milk was coagulated by acids in very fine, small flakes, whereas cow's milk was curdled in thick lumps. In order to make cow's milk more like human milk, it was diluted with water, and milk-sugar was added, first by Biedert* and then by Raspe;† this diluted milk gives even a finer coagulation.

This simple method of preparing food so nearly approximating human milk certainly merits to be highly recommended, and it is used indeed with the best results in the whole world.

At the last meeting of the New York Academy of Medicine, on June 13th, Professor Rotch, of Boston, in his excellent paper on "Infant Feeding," laid also much stress on using only diluted cow's milk with the addition of milk-sugar, and warned against the use of all so-called patent food materials, because physicians ought to look themselves to the foods they gave, and not rely upon business men to find out foods and to recommend them. Merely from this principle we should not use the artificial foods for infant feeding.

As you have seen before, the result of our investigation is that the time of stomach digestion is much longer for all manufactured artificial foods than for milk (human, cow's undiluted and diluted); in this way it is proved by experimentation that milk should have the preference, and therefore I fully agree with Professor Rotch.

If asked what conclusions we may derive from these investigations, they would be as follows:

1. Infants deprived of human breast milk should be fed, first of all, with (diluted) cow's milk, especially as we are now able to protect the milk by sterilizing it (by means of Soxhlet's apparatus) from decomposition and bacteria.
2. Infants artificially fed should not be fed every two hours, as thus the stomach would be over-filled, but ought to be fed with these foods at greater intervals.
3. In sick infants the absence of free hydrochloric acid in the stomach contents should be no indication for prescribing it.

The Treatment of Diarrhœa in Phthisis.—"Dr. Polyák, of Görbersdorf, gives in the 'Orvosi Hetilap' the results of some trials he has made of two recently suggested remedies in the diarrhœa of phthisis—viz., silicate of magnesia in the form of talc, which has been recommended by Debove, and lactic acid, recommended by Dr. Sézary and Dr. Aune. About eight ounces of talc were well shaken up in a pint of milk, and this, or even a larger quantity, was given daily. Dr. Polyák thinks it quite impossible that long-continued use of talc can heal intestinal ulcers. Lactic acid proved in his hands a much more satisfactory remedy. The initial dose employed was thirty grains per diem in four ounces of water; this was increased subsequently, but not more than seventy-five grains per diem were given. On the third day the diarrhœa and the pain were generally arrested, and during the next day or two the stools assumed their ordinary character. It was found advisable to continue to give small doses for some time longer."—*Lancet*.

* Biedert, "Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," Bd. ix, p. 352.

† F. Raspe, "Arch. f. Hygiene," Bd. v, E. 2.

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THE INFLUENCE OF THE OVARIES ON THE ORGANISM.

In a recent issue we gave an outline of Professor Brown-Séquard's curious investigations into the influence of the testicles on the organism, and further information concerning his ideas will be found in the present issue. In connection therewith, as we suggested in our article of July 6th, it is interesting to consider the significance of the ovaries apart from their reproductive function.

It would be a difficult matter to compute the vast number of cases in which the ovaries have been removed. It is but a few years since the text-books on gynæcology and general surgery could compass in a table of small dimensions the names of those who had performed oophorectomy and the number of cases in which they had operated. Now the number of operators is "like the stars," and not a few have reported series including several hundred cases. A great deal of valuable information has been derived from the publication of these cases, and much more is to come. Glaevecke has analyzed a great mass of data of this character, and his conclusions are suggestive, not to say startling, at least in some respects. Of cases in which the ovaries had been removed, he found that in 88 per cent. menstruation ceased at once or after a short time; in the remaining 12 per cent. it continued at rare intervals and with a much diminished flow. The cessation of menstruation is explained on the theory that the ovary is the source whence the impulse to menstruation proceeds. In about half the cases the molimina menstrualia still recurred in obedience to habit, together with a recurring irritation of the uterus proceeding from the proper nerve centers, and causing hyperæmia. The phenomena of the menopause were present in most cases: flashes of heat, dizziness, headache, leucorrhœa, sweating, etc. In most cases also the vagina and uterus became atrophied after a short time, uteri that had been enlarged from chronic inflammation or the presence of myomata becoming as small as or smaller than the normal. In 42 per cent. of the cases the body increased in weight and in the supply of subcutaneous fat. In most of the cases the sexual desire was notably diminished and in many it was extinguished. In almost all cases the mind became more or less affected, and not infrequently melancholia resulted.

After the removal of the uterus, menstruation ceased in all the cases analyzed, and atopomenorrhœa or substitutes for menstruation never occurred to any extent. Molimina menstrualia recurred regularly for a short time, with pain and annoyance in the abdomen, this being explained by the continuance of ovarian activity and the reflected pelvic hyperæmia

recurring monthly. Removal of the uterus had no perceptible influence upon the vulva and vagina, and the ovaries did not necessarily undergo atrophy for several years. The influence upon the general nutrition is said not to be so decided as that of removal of the ovaries. Sexual desire is also influenced to a much slighter degree than after oophorectomy. In a third of the cases there was more or less mental derangement.

Thus it will be seen that the conclusions from this analysis are not entirely in accord with general opinion nor with the expressed views of some writers of large experience. In the matter of sexual desire, it has been repeatedly asserted that this was more likely to be intensified than diminished by removal of the ovaries. As to the mental effect, it will doubtless appear too sweeping a statement to be true that all, or nearly all, women whose ovaries are removed suffer unfavorable mental changes. Were this the case, it would be in itself a sufficient reason for the greatest circumspection before performing the operation.

Keith has recently stated that 10 per cent. of his patients who recover from hysterectomy subsequently suffer from melancholia or other form of mental disease. Even if this percentage, much smaller than the proportion stated by Glaevecke, suffered in this way, it should make one hesitate to impose upon a woman the risk of changing the ills she has for others that are worse. What is chiefly required in this matter at the present time is not greater operative skill so much as calmness and clearness of judgment to decide as to cases which are suitable for operation. These cases may be divided into three classes: 1. Those in which an operation is imperative. 2. Those in which the propriety of an operation is questionable. 3. Those in which an operation, for whatever reason, should not be performed.

And we consider it a reasonable proposition that an operation should not be performed, and the life of the patient jeopardized, if moderate relief from her existing evils can be obtained by less dangerous procedures.

DOMESTIC AND PUBLIC HYGIENE.

THE women physicians of all schools of practice in the city of Chicago have formed a Woman's Medical Union for the Advancement of Domestic and Public Hygiene. In New York, the Ladies' Health Protective Association, which has done good work in the matter of street cleaning and the abatement of public nuisances, is now investigating matters relating to the management of the public schools that are of sufficient interest and moment to rouse the seven sleepers or any other inert body of indifferent citizens. But the most unique organization for inducing municipal authorities to enforce sanitary laws is a little colony of college-bred women about to be established in Rivington Street. In that unsavory locality, graduates from the leading literary colleges for women, together with a woman physician, are about to take up their abode, and to adopt all the inconveniences of such a life, in the earnest endeavor to convert some of the great unwashed into the washed

by means of baths at five cents each; to interest young girls in the subject of cleaner living; to improve the gutters for those who play in them; and to diminish as far as possible, by a personal statement to the proper representatives of municipal government, the avoidable horrors that they expect to share with the natives of this region, for smells are no respecters of persons, neither is the sight of decaying animal and vegetable matter. This little band of young and pretty women have been told again and again that they need not expect to teach the people anything, but consoled in the same breath by the assurance that they themselves will learn a great deal. The movement is not a so-called religious or intellectual venture. It is a simple scheme of ethical culture, beginning at the foundation of things, without cut-and-dried rules, prejudices, or opinions. Books are wanted for the girls. It is hoped that, if a girl can be induced by personal influence to read one book, she may rise equal to a desire for another. Not even the most sanguine of the Rivington Street colony expect to teach the mature women anything, though they have plans for making the poor souls happy now and then. In a little speech on the subject, a bright and charming Smith College graduate said: "The mothers are always left out. The men have pleasure; they get drunk and fight. The little children can play in the gutter till eleven o'clock at night. Boys and girls have their dance halls. But the laborer's wife signs her death warrant, so far as all pleasure is concerned, the instant she marries. The plush gown that constitutes the wedding garment is her last splurge." The colonists' idea of giving these mothers pleasure is to present them with something good to eat; and our college graduates trust that some listless, weary woman may rouse herself and wish to learn of them how to make it.

Hygiene as the basis of morals is one of the governing principles of modern philanthropy. Every year a disposition to raise the fallen and befriend the friendless by affording them increased material and physical prosperity widens its dominion. Two or three, here and there in little groups, have worked out social problems in this way all over the country. In England, it is said, the strenuous efforts of one woman—she found herself in prison once on account of those efforts—have revolutionized the entire sanitary code. It would seem that there is not a shadow of a chance now for the Circumlocution Office in our large cities. The farmer has decided to cut his corn himself, so the larks must be up and about their business. The nineteenth century is the woman's century, as Goethe has it, and the unprejudiced critic must observe that the nineteenth-century college graduate does her full duty to the times in the matter of domestic and public hygiene.

MINOR PARAGRAPHS.

A BLACKMAILING PLOT DEFEATED.

MR. MALCOLM MORRIS, a London surgeon, recently the subject of an attempt at blackmail, in the guise of a suit for breach of promise of marriage, has had the satisfaction of seeing two of the conspirators against him sent to prison. The principal offender was sentenced for five years, the other for eighteen

months. The sympathy of the London profession was unanimously in Mr. Morris's favor in the contest, and, now that he has won his cause, he has been presented with an address of confidence and respect. Many of his *confrères* have also subscribed their names to a paper agreeing to make up a fund to reimburse him for a part of the heavy expenses made necessary by the contest, headed by Sir Andrew Clark, Sir James Paget, Sir Alfred Garrod, Dr. Quain, Dr. Ord, Dr. Broadbent, Mr. Crichtett, and many other well-known men. The "Lancet" also appears upon the list for five guineas, and its editor congratulates Mr. Morris on the result, and praises him for his courage in making a stout resistance where a weaker man might have been tempted into a compromise with the conspirators.

THE NEW BLOOMINGDALE ASYLUM.

It is said that the superintendent of the asylum, Dr. Charles H. Nichols, is about to visit a number of European lunatic asylums, and that the results of his observations will be considered in arranging the plans of the new asylum at White Plains. Dr. Samuel B. Lyon will be acting superintendent during the absence of Dr. Nichols. In view of the fact that the new Bloomingdale will have a fund of a million dollars with which to build, Dr. Nichols's mission will be seen to be a highly responsible undertaking and quite the opposite of a holiday trip. It may, and doubtless will, have a wide-reaching influence upon the future of asylum construction.

A REMARKABLE ACCUMULATION OF TRICHINÆ.

It is stated in the "Medical and Surgical Reporter" that Dr. Senator, of Berlin, lately reported an account of the autopsy in the case of a man who had died of cancer of the œsophagus. The body was found to be overrun with trichinæ, every fiber of muscular tissue being inhabited by them by the hundred. One piece of muscle weighing less than two grains contained, by count, two hundred and eighty of the parasites. Inquiry being instituted, it was learned that he had had trichiniasis twenty-seven years before, but had recovered and been able to attend regularly to his duties as a night-watchman until the other malady laid him up, only suffering from occasional pains of a rheumatic character.

A QUESTION OF PRECEDENCE.

The "Lancet" says that a question of precedence between the Royal College of Physicians and the Royal College of Surgeons was brought to an issue lately by Sir Andrew Clark, who is the president of the first-mentioned college. On taking the chair at the beginning of his second term he stated that he had been called upon to sign a document as president which was also signed by the head of the College of Surgeons as well as by the president of the General Medical Council. He insisted that his signature should precede the others, and, the matter having been referred to the Heralds' College, it was found that he was in the right, and his name was made to head the list by the Garter King at Arms.

THE SEXUAL GLANDS AS SOURCES OF ENERGY.

We lately gave a summary of an account, published in one of our Paris contemporaries, of M. Brown-Séquard's practical tests of his theory of the influence of the testicle on the economy. Our Paris correspondent, in a letter since received, states that the liquid used in the subcutaneous injections is prepared by adding from two to five cubic centimetres of distilled water to the juice obtained by crushing a testicle and filtering the

mixture. In a note addressed to our correspondent, dated June 28th, M. Brown-Séquard says: "A communication will be made to-morrow by a Paris physician of three cases of weakness due to old age, treated by subcutaneous injections of a liquid extracted from the testicles of guinea-pigs and rabbits. The success was as great in each of these cases as it was in myself." Our correspondent further informs us that M. Brown-Séquard regards it as important to prolong the functional activity of the testicles—a most natural corollary of his theory—and that he has even gone so far as to advise an incomplete form of masturbation, falling short of ejaculation, in two cases where there was cerebral weakness, and with most favorable results. In the article that we published on this subject two weeks ago we suggested that whatever was true of the testicles in respect to their influence over the system might also be true of the ovaries, and our correspondent adds that M. Brown-Séquard also entertains this idea, and has accordingly asked some medical women to test the question in their own persons.

THE INCREASE OF LEPROSY.

ONE of the prominent questions of the day is that of the renewal of leprosy. Leper-houses are springing up in one part and another of the English-speaking portion of the world, after an abolition of two centuries or more. There have been frequent allusions to the growth of the disease in the foreign journals. Three cases have lately been brought to light at Cape Breton Island, Nova Scotia, one of the patients being far advanced in the disease and a very repulsive object. This is the report of Dr. Smith, medical attendant at the lazaretto at Tracadie, who was sent to the island by the Canadian Department of Agriculture, in whose jurisdiction rest all like inquiries relative to the public health. The singular feature in the report is that a very advanced case of leprosy should have been permitted to continue unisolated in relatively close proximity to a retreat designed to meet the necessities of just such cases; in a straight line the distance of the leper from the leper-house did not exceed three hundred miles. The boundary line of a province passes between them, however. The three newly discovered cases were in Nova Scotia, but the lazaretto is in New Brunswick. The intervention of a territorial line like that will often prove a serious obstacle to the prompt resolution of a health problem; what disposition the Government will make of these cases has not been announced. It is reported that other subjects of leprosy are at large in the northern part of New Brunswick; they are generally Acadians of French extraction.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 16, 1889:

DISEASES.	Week ending July 9.		Week ending July 16.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	15	2	23	0
Scarlet fever.....	54	3	50	9
Cerebro-spinal meningitis....	1	1	1	1
Measles.....	39	3	55	3
Diphtheria.....	84	18	76	26

The Orange Mountain Medical Society met on the 12th inst. at the house of a member in Springfield and a committee was appointed, consisting of Dr. Bayles, Dr. Harvey, and Dr. Bradshaw, to report a memorial note concerning the late Dr. Stephen Wickes. The paper of the evening, by Dr. Carl Buttner, was on the "Climatic Treatment of Consumption."

Recent Deaths.—Dr. Austin White Thompson, who died at Northampton, Mass., on June 11th, was the well-known proprietor of the "Shady Lawn," in that city. This was a private hospital organized by him over fifteen years ago. He was born in 1834, at Pelham, and was educated at Harvard University, taking his degree in arts, with the salutatory oration, when only twenty years of age. He was graduated in medicine in 1857, from the Harvard school. He was an assistant superintendent at the Insane Asylum at Northampton under Dr. Pliny Earle. He was a member of his State medical society, and an ex-president of the Hampshire District Society. He was in his fifty-fifth year when death, by pulmonary tuberculosis, overtook him.

Dr. Theodoric P. Mayo died on June 20th, at Richmond, Va., in the sixtieth year of his age. He was a native of Virginia and educated at Richmond. He was graduated in medicine from the medical college of that city in 1853. In the late war he served as surgeon of the Virginia contingent in the Confederate army.

Dr. Jonathan Mann died on June 15th at Boston. He graduated in medicine at the Berkshire Medical College in 1843, and became a member of the Massachusetts Medical Society in 1852. He was in his seventy-fourth year when his death took place. About eight years ago he withdrew from active practice.

Dr. Ellwood Wilson, of Philadelphia, has died at the age of sixty-seven years. He was one of the founders of the Jefferson Hospital and for many years a trustee of Jefferson Medical College. He was born in Pennsylvania and graduated in medicine, from the school above named, in 1845. He was formerly one of the lecturers at the Nurses' Home, on obstetrics and diseases of women. He was one of the original members and officers of the Philadelphia Obstetrical Society, and had been a member of the College of Physicians since 1851.

The New York State Medical Association.—The seventh special meeting of the Fifth District Branch will be held in Port Jervis (Orange County), N. Y., on Tuesday, August 27th. For those who are willing to spare the time after the meeting, a carriage drive of seven miles along the Delaware River to Milford, Pa., is promised. Members are urged to make an effort to attend this meeting, as the following committee of arrangements are making every preparation to insure an interesting meeting, both scientifically and socially: Dr. J. H. Hunt (chairman), Dr. W. B. Eager, Dr. M. C. Conner, Dr. T. W. Bennett, Dr. W. H. De Kay, and Dr. J. A. Munson. Dr. W. T. Lusk, of New York, is the president, and Dr. E. H. Squibb, of Brooklyn, the secretary.

The Medical School of Maine.—The medical department of Bowdoin College, at Brunswick, Me., has only limited resources for the clinical instruction of its students, who are said to show a tendency to desert the school and to take their last year's course in institutions which have hospital privileges. On June 24th the students held a meeting and adopted resolutions in which they suggest that the school could be made more prosperous by being moved to Portland, where there are two hospitals and some other clinical resources.

The Royal Victoria Hospital.—The "Montreal Medical Journal" for June announces that the building of the Royal Victoria Hospital has at last been begun. The estimated cost is upward of half a million dollars. The arrangements for the treatment of disease and for the comfort of the patients embrace many modern features. Very special attention has been directed by the architect to introducing into the wards all the modern improvements which tend to facilitate clinical teaching.

A New Medical College in Tennessee.—The trustees of the Grant Memorial University have voted to add a medical de-

partment to the university. A full faculty has been selected, with Dr. E. A. Cobligh as dean. It is expected that the new department will be opened at Chattanooga, Tenn., in September next.

The University of Buffalo.—Dr. Charles Cary, professor of anatomy in the university, has been transferred to the chair of materia medica and therapeutics, made vacant recently by the resignation of Dr. E. V. Stoddard.

Dr. John Jordan Brown, a notice of whose death at Mifflinville, Pa., appeared in our last issue, writes from Bloomsburg, Pa., as follows: "In the obituary notices of July 13th you make a note of my death. I wish to make a few corrections. 1. I no longer live at Mifflinville, Pa. 2. I never was a member of the Legislature. 3. I never died. The balance of the notice is correct."

A Seaside Home for Children.—Dr. L. Coffin, of the Brooklyn Seaside Home, informs us that arrangements have been made at Coney Island for the reception and care of a class of children heretofore unprovided for—those of the middle and independent classes.

Change of Address.—Dr. Edward N. Liell, to "The Wave Crest," No. 39 East Fiftieth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 7 to July 13, 1889:*

McPARLIN, THOMAS A., Colonel and Surgeon. By direction of the acting Secretary of War, the retirement from active service this date, by operation of law, under the provisions of the act of Congress approved June 30, 1882, is announced. Colonel McParlin will repair to his home. Par. 2, S. O. 157, A. G. O., July 10, 1889.

SMITH, ANDREW K., Colonel and Surgeon, promoted surgeon, with rank of colonel, to rank from July 10, 1889, vice McParlin, retired.

TOWN, FRANCIS L., Lieutenant-Colonel and Surgeon, promoted surgeon, with rank of lieutenant-colonel, to rank from July 10, 1889, vice A. K. Smith, promoted.

PERLEY, H. O., Captain and Assistant Surgeon, is ordered to accompany troop from Fort Wayne, Michigan, to Gogmac Lake, Michigan, to encamp there with the Michigan State troop from August 8 to 13, 1889. Par. 1, S. O. 154, Headquarters Division of the Atlantic, July 9, 1889.

PERLEY, H. O., Captain and Assistant Surgeon, is granted fourteen days' leave of absence, to commence about July 14, 1889. Par. 2, S. O. 154, Headquarters Division of the Atlantic, July 9, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending July 13, 1889:*

WHITE, S. STUART, Assistant Surgeon. Detached from the Trenton, July 7, 1889, and ordered to the Naval Hospital, Brooklyn, N. Y.

WHITE, C. H., Medical Inspector. Detached from the Trenton and to wait orders.

NORFLEET, ERNEST, Passed Assistant Surgeon. Detached from the Trenton and ordered to the Monocacy.

AMES, H. E., Passed Assistant Surgeon. Detached from the Monocacy and to proceed home and wait orders.

HARMON, G. E. H., Surgeon. Detached from the Constellation and ordered to the Naval Academy.

LOWNDES, C. H. T., Assistant Surgeon. Detached from the Constellation and ordered to the Naval Academy.

HARVEY, H. P., Surgeon. Detached from the Vandalia July 7th, and to proceed home and wait orders.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service from June 10, 1889, to July 13, 1889:*

- FESSENDEN, C. S. D., Surgeon. To proceed to Cairo, Ill., on special duty. July 8, 1889.
 LONG, W. H., Surgeon. Granted leave of absence for twenty-eight days. June 18, 1889.
 AUSTIN, H. W., Surgeon. To proceed to Cairo, Ill., on special duty. July 8, 1889.
 IRWIN, FAIRFAX, Surgeon. Granted leave of absence for ten days. July 6, 1889.
 MEADE, F. W., Passed Assistant Surgeon. Granted leave of absence for thirty days. June 24, 1889.
 MAGRUDER, G. M., Assistant Surgeon. Relieved from duty at Baltimore, Md., to report to the Supervising Surgeon-General for duty as acting chief clerk and attending surgeon. July 10, 1889.
 GOODWIN, H. T., Assistant Surgeon. Granted leave of absence for thirty days. July 8, 1889.

Society Meetings for the Coming Week:

- TUESDAY, *July 23d*: Medical Society of the County of Putnam (annual), N. Y.

Proceedings of Societies.

AMERICAN NEUROLOGICAL ASSOCIATION.

Fifteenth Annual Meeting, held at Long Branch, N. J., on Wednesday and Thursday, June 26 and 27, 1889.

The President, Dr. E. C. SEGUIN, of New York, in the Chair.

Malaria as a Cause of Degenerative Diseases of the Spinal Cord.—Dr. MORTON PRINCE, of Boston, presented a paper on this subject in which he spoke of the frequency of tabes and other spinal degenerations in cases which also presented a history of malaria. The first case he had recorded had been one of locomotor ataxia with typical tabetic crises before each malarial chill. Another patient had had gastric crises regularly once monthly, and another crises beginning with rigor and followed by diarrhoea, this occurring every three weeks. The latter case had been diagnosed as malarial by the family physician. Altogether the author reported in detail six cases showing the coexistence of tabes with malaria, and six cases where the malarial history had been associated with disseminated sclerosis. Besides these he had notes of three other cases of multiple sclerosis, two of locomotor ataxia, and one of lateral sclerosis with a similar relation. Generally the malarial poison was present in the system previous to the development of spinal symptoms. He pointed out coincidences in the course of syphilis and malarial poisoning, such as the slowness of action of the poison and its amenability to treatment; and also called attention to the relation of the syphilitic virus to tabes. He had found but little to support his ætiological theory in literature. Erb, following Schulze, had stated that tabes might occur as a sequel to intermittent fever. Tuzek had proved that tabes could be caused by the ergot parasite. Many nervous disorders were undoubtedly due to malaria, such as neuralgias, anæsthesias, severe psychoses, etc. He alluded to the deposition of pigment in the brain in some cases of pernicious malarial fever. It would be very important for many army pensioners if it could be definitely determined that tabes and sclerosis might be sequelæ of malarial disease.

Dr. L. C. GRAY, of New York, saw no reason why the malarial poison should not cause spinal diseases. We did not yet know the exact character of that poison. But there was a sort of periodicity in many spinal and cerebral disorders as well as in peripheral nervous affections which was often as marked as that of fever and ague. He had noticed this particularly in intracranial syphilis. Some of these neuropathies were even relieved by quinine, as he had observed in cases of tabes. When we spoke of latent malarial disease and rested our diagnosis merely upon periodicity, there was danger of error. If Laveran and Councilman were right in their discovery of the malarial germ, this should be looked for in such cases as the author had described in order to corroborate the diagnosis. Improvement or recovery under the use of quinine was no criterion.

Dr. E. C. SPITZKA, of New York, saw nothing in the nature of the case to forbid an ætiological association between malaria and cord disorders, but he agreed with the preceding speakers that sufficient proof of such relation had not been adduced. To show an ætiological significance, it was necessary to present absolute and intrinsic proof of it. If it could be shown that, as in syphilis, there were nervous symptoms at the time of the malarial attack, it would be a different matter. In the secondary fever of syphilis there was absence of the knee jerk. Most nervous symptoms in malarial disease were of a neuralgic character. The anæsthesias differed from those of tabes. It had been found that pigmentary thrombosis or embolism was the most frequent cause of serious nervous disturbances in malarial disease. He believed, however, that, like any other cachexia, antecedent malarial poisoning might predispose to spinal affections. He had observed a case of parietic dementia of the tabetic type which was probably influenced ætiologically by severe malarial infection.

The PRESIDENT could not recall a single case of tabes or multiple sclerosis which presented any relation to malaria.

Dr. PRINCE thought there could be no question as to the correctness of diagnosis as regarded the nervous symptoms in his cases, and as to the antecedent malarial disease; all of his cases had been in men who had been in the army service, and he had documentary proof in the shape of Government records of their having suffered from that poison. The really doubtful question was whether the malarial poison still existed in the system at the time of the development of the spinal disorders. In some of them there had been evidence of its persistence in the shape of typical malarial rigor and pyrexia. He did not consider his ætiological explanation decisive, but merely suggestive.

Dr. SPITZKA thought that there were many cases of nervous disease owing their origin to exposure during the war which were contemptuously rejected by the Pension Bureau. It seemed to him that the association ought to call the attention of the Government to the great injustice which might be done.

Nuclear Ophthalmoplegia with Poliomyelitis (Poli-encephalitis Superior and Poliomyelitis).—Dr. B. SACHS, of New York, reported a case of this affection. The relation between these two forms of disease, which had been suspected by Hutchinson, Mauthner, and others, was proved by this case. But one other was on record, that of Seeligmüller. The history of the patient was briefly that a ptosis of the right eye gradually developed, followed after a few months by ptosis of the left eye also, and soon after a paresis of all the external muscles of both eyes appeared. This resulted in almost absolute fixation of the right eye, but left a slight inward and upward movement of the left. There was immobility of the left pupil to light, but not to accommodation. The right could not be examined, because of corneal opacity. During the development of this nuclear ophthalmoplegia, a subacute poliomyelitis affecting

the entire right leg supervened. There was now marked atrophy of the entire right leg. The knee jerk was lost on both sides. There were no sensory disturbances, there were no tabetic symptoms, and the patient's condition was normal in all other respects. This case proved that the affection of the nuclei in the floor of the third and fourth ventricles was due to the same pathological process which gave rise to poliomyelitis when it affected the gray matter of the cord.

Dr. SPITZKA said the report of the case had been so complete that, as there was but one other such case on record, it did not admit of either criticism or comparison. He referred to Thomsen's case of unilateral nuclear paralysis, where there had been gummatous infiltration on both sides, the explanation of which was to him quite impossible.

Dr. SACHS asked if fibers could be traced up through the ciliary nuclei.

Dr. SPITZKA answered in the affirmative, and made black-board drawings illustrative of their course.

Hyperostosis Cranii.—Dr. W. N. BULLARD, of Boston, then presented for Dr. J. J. PUTNAM a skull which was a remarkable example of this condition. The case had been reported to the association two years before. The patient was a woman, thirty-one years old at death. The chief symptoms had been headache, broadening of the head, dropping out of the teeth, loss of hearing, and vertigo, beginning gradually some years ago. There had been extreme exophthalmia. There had been no retinal changes. Extensive pachymeningitis had been discovered at the autopsy. There were thinning and atrophy in parts of the skull. The orbital cavities were greatly diminished in size. Virchow considered hyperostosis cranii due to inflammatory changes. In this case probably the inflammation had originated at the ear. Dr. Putnam had a patient now with similar symptoms, in whom the exostoses were first noticed in boyhood, and desired the opinion of members as to the justifiability of removal of certain exostoses for the relief of pain. Dr. Bullard himself thought it might be difficult to determine which of the exostoses produced the pain. Some of the exostoses were very diffuse, and the operation might have to be extensive.

The PRESIDENT believed that the pain would be more apt to originate from basal lesions, possibly dural inflammation about the issuing nerves. The jaw in this case was interesting because of its senile conformation and angle, despite the patient's youth.

Spontaneous Degenerative Neuritis of the Brachial Plexus.—Dr. W. M. LESZYNSKY, of New York, read a paper with this title. The patient was a laborer, aged thirty-eight. He had first had pain in the left shoulder, shooting down the arm, which had been ascribed to exposure to wet. There had been then no involvement of the shoulder joint and the motility of the arm had been unimpaired. All the muscles had reacted well to faradaism, except the deltoid, which had been atrophied. There had been no sensory disturbance, but there had been pain on pressure. Gradually other muscles had become paralyzed, until a large number of the arm muscles had been useless. The paralysis had been accompanied by pain, so excruciating that the patient could not sleep at night. A feeling of numbness had extended from the shoulder down the arm over the radial distribution, and a gradual anæsthesia and analgesia had supervened throughout the same area. The faradaic excitability had disappeared, and there had been galvanic superexcitability. Then he had begun gradually to improve, and would ultimately recover. The case had been remarkable in its severity, in its idiopathic origin, and in the escape of the median and ulnar nerves from the inflammatory process. Not more than one case had to his knowledge been found in literature.

Dr. PRINCE thought it would be difficult in the early stages of such a case to distinguish it from progressive muscular atrophy of the shoulder type. He recalled a case of his own in which there had been every reason for considering it to be neuritis. It had begun with cramps, such as were observed in writer's cramp, and it had been several years before other symptoms proved the case to be one of progressive muscular atrophy. The most common cause in such cases as the author's was traumatic arthritis, but generally the results were slight.

Dr. W. R. BIRDSALL, of New York, had seen this case before, and was impressed with the idea that it might be a periartritic affection, but the author's careful study of the case seemed to exclude this. He recollected that at that time there had been some ankylosis of the shoulder joint in the case.

The PRESIDENT considered the study of the differing resistances in the healthy and diseased arm made by the author interesting, and asked if any member had had experience in such measurements.

Dr. GRAY had noticed much variation in resistance in many of his patients from day to day.

Dr. M. A. STARR, of New York, had measured the resistance in Basedow's disease, and had found it to vary within a thousand ohms in the same cases from time to time. Electricity was diffused through muscular better than through any other tissue. The chief resistance was in the skin. Probably but little of the current permeated nerves, and hence alterations of nervous tissue would not have much to do with the variations mentioned by the author.

Dr. G. M. HAMMOND, of New York, stated that it was well known that the resistance differed from day to day in animals. He asked if in this case it had been measured for a number of times, and was answered that eight trials had been made.

Dr. BIRDSALL thought the question of resistance had little to do with our study of disease. It was easy to explain the numerous variations by the wide differences in vascularity and moisture of the tissues at different times. It might be due in this case to paralysis affecting the physical condition of the tissues. The saturation of the epidermis by perspiration would explain the variations mentioned by Dr. Gray. He had made measurements in cases of Basedow's disease some time ago, and believed that the diminished resistance found was due to the moisture of the skin. It could not depend on dynamic conditions in the nervous system, but was purely a matter of physics about which there was no great mystery.

Dr. GRAY said the explanation by moisture of the skin was not applicable in his cases. The differences which he had observed had not been owing to the humidity of the atmosphere, although atmospheric conditions might possibly induce dynamic changes in the body.

Dr. SACHS pointed out that on one day the author's patient showed 580 ohms increase on the diseased side, and on another day 1,170 ohms increase on the sound side. Such variations evidently had little to do with the pathological process in the patient. Eulenborg had measured the resistances in cases of paralysis agitans and of Basedow's disease, but without any practical results. As such measurements were very complex, they required exceedingly great care.

Dr. PRINCE objected to the use of the palm of the hand for precise experimentation, owing to the great variability of the thickness of the skin, and consequently of the resistance. He thought the forearm ought to be used.

Dr. LESZYNSKY had not brought forward the question of resistance in this case as a diagnostic symptom. It was increased in the affected arm at every examination. With the subsidence of the symptoms the resistance gradually diminished, but there was a difference between the sound and morbid sides throughout

the disease. As to the question of moisture, there was excessive perspiration upon the paralyzed arm, while the normal arm was dry, in spite of which the resistance was greater upon the former. He thought it better to place the electrode upon the wrist than in the hand. There had been no antecedent traumatism in the case; the roughening of the shoulder joint was the result of the paralysis.

Interpeduncular Myxosarcoma.—Dr. M. ALLEN STARR, of New York, presented a specimen of this sort. The growth lay in the middle cranial fossa, in the median line, between the crura cerebri, which it separated. It extended into the lateral ventricles, separating widely the caudate nuclei and optic thalami. The patient had been a male, aged twenty-one months at death. At the age of thirteen months, in October last, a lateral nystagmus had been observed in both eyes, varying from time to time. Dr. Knapp and Dr. Roosa had found a slight pallor of the optic discs, which they had considered normal. Subsequently exophthalmia had developed, gradually increasing until death. Convergence of the eyes had been impossible, although no paralysis of a cranial nerve had been discoverable. The reflexes of the iris had been lost. Toward the middle of April, this year, the child had become unable to walk. The knee jerks had been exaggerated; there had been ankle clonus and typical spastic rigidity. Finally, the back could not be held up, and subsequently the head could not be supported. There had been gradual emaciation. There had been no apparent headache. From time to time the scalp had been congested. About this time the pallor of the optic discs had indicated atrophy. There had been no blindness, no hemiopia, no aphasia, as far as could be ascertained in so young a child. Toward the middle of May ataxia of the arms had developed, but without loss of muscular power. On June 8th vomiting and Cheyne-Stokes respiration had come on, and the child had died in nine hours. The diagnosis of tumor had been made, but the question of localization was of great interest. Nystagmus was not a localizable symptom, but had been found most frequently in lesions of the corpora quadrigemina. The exophthalmia indicated intracranial pressure, the gait disturbance led one to think of a cerebellar lesion, while the ataxia of the hands pointed to a basilar trouble affecting symmetrically either the pons or the medulla. The question of operative interference had been considered, but he had opposed that proposition because of the difficulty of localizing the tumor. The autopsy proved that the pons was not even pressed upon, and that the cerebellum was normal. There were twenty ounces of fluid in the ventricles. He would ask if there was any localizing value in nystagmus or exophthalmia, and what the probable cause of the ataxia had been.

The PRESIDENT, referring to the question of ataxia, recalled a case of remarkable bilateral ataxia with optic atrophy, where a large interpeduncular tumor was found between the crura. He thought such ataxia was to be accounted for by pressure upon the motor tracts or motor nuclei. To him the most puzzling feature of Dr. Starr's case was the absence of blindness. As to the nystagmus, it had as yet, in his opinion, no localizing value. He had seen two cases with lesions of the quadrigeminal bodies, but without nystagmus.

Dr. LESZYNSKY said the child might have had only central vision, which might explain the presence of nystagmus, but Dr. Starr answered that the visual fields were normal.

Dr. SAOUs was reminded of Meynert's case of tumor in both optic thalami, with ataxia similar to that in Dr. Starr's case. He thought the thalami might have been pressed upon in the latter, but still was not sure that that would cause the ataxia. He considered nystagmus very frequent in many cerebral disorders of children.

Dr. H. M. LYMAN referred to a case he had seen recently of defective cerebral development in a child where there was also nystagmus.

Dr. GRAY asked how a diagnosis of intracranial tumor had been made so early in this case, and was answered that the diagnosis had not been made until all the symptoms described had made their appearance.

Dr. HAMMOND thought ataxia depended upon injury to the optic thalami or corpora striata, and referred to a case of Weir Mitchell's in which there was a remarkable unilateral ataxia, with a lesion of the optic thalamus and corpus striatum upon the opposite side.

Dr. LESZYNSKY had seen a child, several years ago, with well-marked nystagmus, which had disappeared in the course of time. There had been no discoverable cause.

A Contribution to the Study of Anæsthetic Leprosy, with Special Reference to Partial Sensory Disorders.—Dr. GEORGE W. JACOBY, of New York, read a paper with this title. The points to which particular attention should be paid in all cases were the electrical excitability of the muscles, the condition of the reflexes, the presence or absence of fibrillary twitchings, and the condition of sensation. Upon these data depended the diagnosis between anæsthetic leprosy and syringomyelia, as well as that of the central or peripheral localization of the leprosy process. The conclusions arrived at by the author, from the analysis of his own and other cases, were that the diagnosis between the two diseases could not always be made; that partial sensory disorders were not characteristic of syringomyelia, but might occur in anæsthetic leprosy as well as in purely peripheral affections; and, finally, that a differential diagnostic point between central and peripheral loss of temperature sense might lie in its complete loss in the one case and its partial loss in the other.

Dr. STARR said that the same question as to the diagnosis between syringomyelia and anæsthetic leprosy had only recently occurred to him. Three weeks ago he had seen a case with Dr. Prince A. Morrow, of New York, in which there had been a gradual onset of an atrophic and anæsthetic affection of the right arm. The patient had come from the Sandwich Islands, and had been exposed to leprosy. There was anæsthesia to temperature and pain, but not wholly to touch, along the hand and part of arm. There were three small, reddish-brown spots on the arm, which Dr. Morrow considered leprosy in character. The idea of syringomyelia had at once occurred to the speaker, but the history of exposure in a leprosy country sufficed to make anæsthetic leprosy at least the more probable nature of the disease; but without such history it would have been almost impossible to make the diagnosis. As to the matter of partial loss of sensation, in the cases of multiple neuritis and *beri beri* he had seen the sensory loss complete, with the exception, however, of muscular sense.

The PRESIDENT remarked that he had now under observation a case of leprosy, but had as yet made no careful examination of the temperature sense. His case illustrated the ease of diagnosis at an early period, when confusion with syringomyelia could not occur. The patient had a wine-colored eruption on the entire left leg and part of the thigh, the foot being free, and there were three or four similar spots on other parts of the body. There was distinct analgesia with some anæsthesia in these areas, but there was no paralysis or atrophy. The patient had come from the Sandwich Islands. The well-defined limitation of the anæsthetic areas showed that it could not be neuritis. Of late the anterior leg muscles had become paralytic, but there was no reaction of degeneration. The left hand was beginning also to manifest similar symptoms. There were no ulcers.

Dr. C. K. MILLS, of Philadelphia, had seen two cases of leprosy. He thought the author's point with regard to partial sensory disorder very interesting, but he did not see why there should not be partial disturbance also in neuritis, and, in fact, in traumatic neuritis it was quite frequent. The nature of the sensory disturbance depended upon the extent of the injury to the nerve. In ordinary multiple neuritis it might be true, as Dr. Starr insisted, that there was complete loss of sensation, through destruction of all the sensory fibers. He did not see, however, why the sensation to cold should not be injured as much as any. It should be borne in mind that in all infectious diseases attacking the nervous system there was a tendency to seize upon the central as well as the peripheral portions at the same time.

Dr. GRAY agreed with the last speaker as to partial sensory disorders met with at times in peripheral neuritis. He had observed them also in multiple neuritis, where, for instance, there was impairment of the touch and temperature senses, yet the pain was excruciating. He did not see that it was easy to diagnose syringomyelia, and Wichmann and Starr had given no rules for diagnosis in their pamphlets. He believed that no one had made a diagnosis of syringomyelia in life.

Dr. STARR stated that Schulze had made the diagnosis in three cases, which had been substantiated by autopsy. The points for diagnosis were the general conclusions drawn from a study of collected cases. Anna Bäumlér had brought together one hundred and sixteen cases, to which thirty or more had since been added.

Dr. GRAY thought these diagnostic points would apply to many other spinal lesions.

Dr. BIRDSALL had had ideas similar to Dr. Gray's as regarded the diagnostic indications in syringomyelia until he had read Roth's collection of cases. In a certain number of such cases there were clinical pictures differing altogether from those of other spinal lesions and from that of peripheral neuritis. Disturbance of the temperature sense was the particular characteristic. Still, the testing of this sense had been constantly neglected in studying other spinal cases, and it was possible that it might often be disturbed in other spinal disorders. It was hard to see how any other lesion could produce precisely the same symptoms as those of syringomyelia. It was a question whether tracts for temperature and pain could be localized in the cord. Peripheral nerve lesions might cause injury to some sense fibers and not to others, although generally all were injured, particularly where the inflammation was truncal in character. There might be partial sensory disturbance in dermal forms.

Dr. GRAY said it was easy to localize disease in the anterior cornua, in the lateral and posterior columns of the cord, but the diagnosis of central lesions was very difficult. The fact that out of one hundred and fifty cases of syringomyelia only three had been diagnosed during life proved the truth of his assertion. The diagnostic suggestions given were therefore empirical. The presence or absence of the temperature sense had not been sufficiently tested as yet. How would one distinguish a chronic central myelitis?

Dr. BIRDSALL stated that central myelitis began acutely, and thus differed from the slow advance of syringomyelia.

Dr. MILLS thought the question of partial sensory disorder most interesting. But he thought that there would be more apt to be partial disturbance in a truncal than in a dermal neuritis.

Dr. FREDERICK PETERSON, of New York, asked the president if the tendon reflexes had been exaggerated in his case of leprosy, and was answered in the affirmative. He had asked this because he had recently read an interesting study of the reflexes in anæsthetic leprosy made by Dr. Suzuki, of Tokio, and pub-

lished in the "Sei-a-Kwai" medical journal, in which there was an analysis of seventeen cases. One patient had normal reflexes, while all the others had increased tendon jerks, and in some of the cases there was even ankle clonus. The conclusions arrived at by the author were similar to Dr. Jacoby's.

The PRESIDENT called attention to the fact that so many cases of leprosy were now being continually imported into the United States. It seemed as if the country was threatened with its domiciliation. It was a question whether it was not the duty of physicians having such cases to report them to the authorities.

Dr. WHARTON SINKLER, of Philadelphia, mentioned the recent presence of two cases in Philadelphia. The physician in charge had been fined by the Board of Health for not reporting them.

Dr. PRINCE wondered at the manner in which leprosy patients were allowed to go about, and thought also that the attention of the authorities ought to be called to the disease, and reports to the boards of health be required.

Dr. GRAY knew that in the East, where the disease was prevalent, isolation was practiced. He wished to know what the actual danger of contagion was.

Dr. BILL said that the attention of the New York Board of Health had already been called to the matter.

Dr. JACOBY said that Schulze was altogether too positive in his assertions. This author went so far as to contend that cases of leprosy, where cavities had been found in the cord, were not leprosy at all, but syringomyelia. As for himself, he thought a central lesion probably often existed in this disease, although it was well known that the essential pathology lay in a truncal neuritis. A simple dermal neuritis could not be assumed in leprosy. In his case, for instance, the indurated and swollen ulnar nerve could be distinctly felt. He did not agree with Dr. Gray that the diagnosis of syringomyelia could not be made. The only danger lay in mistaking it for leprosy. He had only last evening come across the work of Suzuki mentioned by Dr. Peterson, but had noticed the identity of that author's conclusions with his own, although they had been arrived at from different points of view.

A Description of Two Chinese Brains, and a Note on the *Pli de Passage Inferieure Interne* in the Human Brain.—

Dr. F. X. DERGUM, of Philadelphia, presented two contributions with these titles. He exhibited the brains described. Dr. Mills had made a morphological analysis of one in 1886, and descriptions of three Chinese brains had been added to literature by Moritz Benedikt. The six brains thus far analyzed exhibited unusual complexity due to excessive sinuosity of the gyri, and a tendency to excessive transverse fissuration. The frontal lobes were especially large and complex. There was unusual confluence of fissures, indicative of a low degree of development, such as was often seen in the negro's and sometimes in the white man's brain. There was unusual length of the parallel and Sylvian fissures, also eversion of the orbital and temporal lobes.

Dr. MILLS said it was very important to keep adding to our morphological descriptions of such brains until accurate deductions could be drawn from a very large number.

Dr. SPITZKA stated that the dictum that a tendency to confluence of fissures indicated a low type of development was not accepted by most anthropologists. The more brachycephalic the skull, the greater was the development of transverse secondary folds. The elephant, which stood among the highest of mammals, had a broad skull and a tendency to confluence of fissures. The Chinese were not low in development. The internal *pli de passage* in the negro and idiot was significant only when the general cortical development was poor. The real cause of the location of the chief sulci lay in the inherent

architecture of the brain, and was due to the arrangement of groups of cells and fibers, but the secondary and tertiary sulci might be influenced by other factors, such as the course of vessels. While we might never be able to localize the higher functions of the mind, there was something in the physiognomy of the Chinese brain which struck him as differing altogether from that of the Caucasian. But it was not the same difference as was noticeable between the negro and Caucasian brains. The peculiar moral attitude of the Chinese pointed to some relation between the structure of their brains and the character of their minds. Still, he had observed a great difference between these two Chinese brains, and there was no feature in them which might not be reproduced in the Caucasian brain.

Dr. DERGUM had not wished to imply that transverse fissuration was indicative of a low type, but thought the unusual confluence showed a lack of cortical development. He did not consider them brains of a low type, but many features such as were found in the brains of the negro and ape were found here also. The excessive sinuosity, however, indicated a higher cortical development. For instance, in one brain there were five well-developed frontal gyri.

Dr. SPITZKA had the same idea as Dr. Dergum. As compared with the Caucasian brain, the Chinese was in some respects inferior, and in others exhibited a superabundance of gyri. He spoke of the resemblance between the negro and ape brains. The differences between the brains of the orang-outang and chimpanzee were greater than those between the brains of the chimpanzee and a human being. There was no uniform appearance of the ape's brain. Vogt and another had classified the human brain into three types—the negro, Mongolian, and Caucasian—corresponding somewhat to the three lower types of the gorilla, chimpanzee, and orang-outang.

The Pathology of Sensory Aphasia, with an Analysis of Fifty Cases in which Broca's Center was not Diseased.—

Dr. STARR read a paper with this title. In all of these cases collected by the author some form of sensory aphasia had been present, and in all the lesion had lain in the posterior lower third of the brain. In seven of the cases there had been pure word-deafness, and in these the lesion had been limited to the posterior portion of the first and second temporal convolutions. In eleven cases there had been pure word-blindness, and in these the lesions had been found distributed either in the angular gyrus, the occipital lobe, the temporal convolutions, or the inferior parietal region. In seven cases word-deafness and word-blindness had been coexistent, although the use of language had not been lost; and in these the temporal convolutions had been involved, the involvement extending in some to the inferior parietal, angular, and occipital convolutions. The practical application of the localization of aphasia lesions was obvious, for the regions concerned in speech were especially accessible to the surgeon. Another fact of interest was that it seemed to be proved that there was no ideational center. An idea might be impaired, but could not be wholly destroyed, by a single cortical lesion. Thought, being regarded as the play of consciousness along association fibers between sensory centers, could not be localized.

Dr. J. H. LLOYD, of Philadelphia, had now a case of simple homonymous hemianopsia without psychical or word-blindness, and wished to know whether there was any diagnostic importance in this condition as to localization. Was there a preponderance of one hemisphere over another as regarded sensory memories of language?

Dr. STARR said that the matter of psychical blindness had recently been discussed by Wernicke and another. A lesion affecting both occipital lobes or the association tract bilaterally produced psychical blindness, but a lesion along either tract it-

self did not cause this condition. Nine cases of psychical blindness from lesion of one hemisphere alone had been reported.

Officers for the Ensuing Year were elected as follows: President, Dr. E. C. Spitzka, of New York; vice-presidents, Dr. Wharton Sinkler, of Philadelphia, and Dr. H. M. Lyman, of Chicago; secretary and treasurer, Dr. G. M. Hammond, of New York; councilors, Dr. Henry Hun, of Albany, and Dr. C. L. Dana, of New York.

A later History of a Case of Focal Epilepsy for which Trephining and Excision of the Motor Centers were Performed.—Dr. J. H. LLOYD, of Philadelphia, read a paper with this title. Full details of the case had been reported at the last annual meeting of the association. At that time but three months had elapsed after the operation, and Dr. Ferrier, of London, had stated in the discussion that the time was too short for a decisive result as to the usefulness of the operation. Now that more than a year had passed, further details could be given. Before the operation the patient had had many seizures daily. There was no fit for four months after the operation. Since that time, however, there had been some ten seizures in nine months.

Dr. SPITZKA said there was a minority, but a powerful minority, of clinicians and physiologists who hesitated to accept the dictum that spasms were always of cortical origin when clonic in character and local in manifestation. There were well-authenticated cases of spasm, such as were generally described as cortical, which undoubtedly had their origin in the pons or medulla. He therefore thought it premature to advise a surgical procedure when there was still doubt as to the position of the convulsive center. He was of opinion that the seat of irritation in the great majority of cases of epilepsy was in the lower centers, such as Nothnagel's convulsive center.

Dr. MILLS mentioned the case of a man who had been subject to unilateral convulsions beginning in the hand. There had been a scar upon the head, and trephining had been done at this spot in order to relieve severe pain probably due to trigeminal irritation in the scalp or dura. This operation had relieved the pain, but had caused Jacksonian epilepsy upon the other side. The operation had been repeated in the same spot, the membranes and cortex being removed to some extent, and with great success. It was an apparent illustration of the fact that convulsions might occasionally be the result of operations themselves.

Dr. DERGUM had seen the same case, and stated that the dura had not been opened in the first operation. At the second trephining the membranes had been found united. There had been a pachymeningitis. The patient had had surgical epilepsy. Six months had elapsed between the operations.

Dr. LLOYD said it was a question whether one could have localized epilepsy from irritation of the lower centers, as Dr. Spitzka had intimated. He had always held the idea that such spasm was of cortical origin. In the case that he had just described the absence of fits for four months led him to believe that he had removed the parts concerned in their manifestation. He had been hopeful of the efficacy of this method in the relief of such a disorder, and was not yet willing to give up the idea that something might be accomplished in this way. He thought it would be justifiable to operate again in this same case.

Dr. SPITZKA asked if the cortex removed had been examined microscopically, and what the pathological condition found was.

Dr. LLOYD answered that the microscopist had reported atrophy of the cortical cells.

Dr. SPITZKA remarked that atrophied cells could scarcely be very potent in the production of epilepsy.

The Diagnostic Signs of Melancholia.—Dr. LANDON C. GRAY, of New York, presented a paper upon this subject, in

which he called particular attention to the difficulty of diagnosis of simple melancholia at times. It was usually, when in mild degree, confounded with neurasthenia. He had recently made a study of eighteen cases of this form, and pointed out what he considered the three cardinal symptoms—viz.: depression, insomnia, and posterior cervical pain. The last named he thought especially characteristic. This pain was sometimes neuralgic in character, at others vague and continuous. Simple melancholia such as this should not be confounded with neurasthenia or melancholy states dependent upon hepatic or nephritic disease, or with non-typical forms of insanity.

Multiple Neuritis and Infectious Cerebro-spinal Meningitis.—Dr. H. S. URSON, of Cleveland, read a paper in which he considered the relation between these affections. Dr. Mills had first suggested the possibility of a connection between the two. His own case was briefly as follows: A woman, aged twenty-seven, had intense pain and tenderness in the extremities, together with stupor and slight opisthotonos. No electrical examination could be made, because of the extreme hyperæsthesia. She had had a multiple neuritis a year before, but recovered. The autopsy revealed congestion of the pia of the brain and cord, with marked serous effusion, and a microscopic examination of the ulnar nerve revealed interstitial inflammation there. In the opinion of the author, the nerve trunk inflammation was not parenchymatous, but rather of the membranes, and was analogous to the process in the brain and cord; the nerve fibers were involved secondarily. He had not looked for bacteria.

Dr. MILLS naturally felt interested in the case. He had had an autopsy in one of his own cases. Portions of nerves and sections of the brain and cord had been examined by Dr. Gray, of Washington, and this examination had proved conclusively the association of neuritis with the cerebro-spinal meningitis.

Dr. SPITZKA referred to the vacuoles in the author's sections, and said retarded lymph outflow might be important in causing the death of tissue and the formation of gas bubbles which these vacuoles must be considered to represent. He had noted also two bodies in the section larger than ordinary leucocytes, very delicately stained, which the author should have carefully delineated.

Case of Abscess of the Brain; Operation; Death on the Ninth Day.—Dr. C. K. MILLS, of Philadelphia, gave an abstract of a paper on this subject by Dr. J. T. ESKRIDGE, of Denver. The patient had had typhoid fever. Two months later there was purulent inflammation of the middle ear, and not long after symptoms of brain irritation followed, such as headache, delirium, and persecutory delusions, together with paralysis of the right hand and the right angle of the mouth. The skull was trephined over the face and hand centers, and a purulent inflammation was found under the dura. The wound was then dressed, and the patient died nine days later. A widespread suppurative meningitis was found at the autopsy. Dr. Mills thought the case of great practical value. He thought trephining should have been performed in two places—at the center, which had been properly localized, and also over the mastoid region, where the inflammatory process had originated.

Peroneal Form of Progressive Muscular Atrophy.—Dr. B. SACHS, of New York, presented a paper on this subject. The author reiterated his statement of last year that this form was closely related to Duchenne's type. He gave very full details of the cases of two brothers that had recently come under his observation through the kindness of Dr. Gibney. The boys had been thirteen and ten years of age. There had been a gradual development of double club-foot in both at the age of five years, followed by an atrophy proceeding upward, beginning in the leg and toe muscles and spreading to those of the thigh, in one case

also involving muscles of the upper extremities. The knee-jerks had been present. In one there had been general anæsthesia, in the other paræsthesia. There had been full degenerative reaction in some of the muscles in one boy, partial in the other. The progressive wasting rendered treatment of this form of club-foot less satisfactory than that of congenital cases. He would suspect this peroneal form in all cases where acquired club-foot was associated with progressive wasting of the leg muscles, and particularly if heredity or family occurrence of the disease could also be established.

Dr. SINKLER could recall several similar cases, one in particular of two brothers. But doubtless more would be seen if careful attention were paid to the matter.

Dr. BIRDSALL did not think the presence of knee-jerk so important a diagnostic point as the author seemed to regard it. He had seen a few cases of old poliomyelitis where the paralysis and atrophy were below the knee, and yet the knee-jerks were quite active on both sides. It could not, therefore, be an essential point in diagnosis.

Dr. BULLARD had also observed the presence of the knee-jerk in old cases of poliomyelitis.

Dr. PRINCE asked if the author had said that the absence of pseudo-hypertrophy was a diagnostic point between this form and primary myopathies, and was answered in the affirmative. He did not consider this true.

Dr. SPITZKA asked if the symmetry and the coincidence of time and intensity as shown in the photographs were always found, and was answered in the affirmative.

Dr. SINKLER corroborated two of the speakers as to the presence of the knee-jerk in cases of old poliomyelitis, and cited an instance from his own experience.

Dr. GRAY objected to the division of progressive muscular atrophy into groups. Why should there be an arm type, a face type, and a leg type? Such division might be carried out indefinitely. A more useful classification would be upon the pathology of the disease, a division into central, muscular, and peripheral nerve lesions.

Dr. SACHS said he did not lay great stress upon the presence or absence of the knee-jerk. Yet in extreme atrophy of the vasti from poliomyelitis, the knee-jerk was always absent; and if it was present he should consider the case one of progressive muscular atrophy. He had himself tried to discard subdivisions as much as possible, but the present classification was a clinical necessity. A better one might be made when the pathology was more accurately determined. At present there were spinal and non-spinal cases, but there was no certainty as regarded peripheral nerve cases.

Pseudo-hypertrophy.—Dr. PRINCE exhibited some microscopic specimens from the muscles of a patient with this affection. The patient was now twenty-eight years of age. The specimens showed a large quantity of connective tissue, hypertrophy of a few fibers, and great atrophy of many of the fibers. There was also great loss of striation, but no fatty or granular degeneration and no vacuolization.

The following papers were read by title:

A Series of Cases of Cerebral Hæmorrhage of Unusual Interest.—By Dr. J. H. LLOYD, of Philadelphia.

The Histological Examination of Nerves removed for Trigeminal Neuralgia.—By Dr. J. J. PUTNAM, of Boston.

The Pathological Anatomy of Chorea.—By Dr. C. L. DANA, of New York.

Paranoia in Two Sisters.—By Dr. FREDERICK PETERSON, of New York.

Election of Members.—The following new active members were elected: Dr. W. M. LESZYNSKY, of New York; Dr. C. EUGENE RIGGS, of St. Paul, Minn.; Dr. H. S. URSON, of Cleve-

land, O.; and Dr. HOBART A. HARE and Dr. J. P. C. GRIFFITH, of Philadelphia. Mr. VICTOR HORSLEY and Dr. DAVID FERRIER, of London, were elected honorary members.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of June 4, 1889.

The President, Dr. GEORGE W. JACOBY, in the Chair.

Alcoholic Paralysis with Central Lesions.—Dr. W. P. WILKIN reported the history of a case of this affection, and exhibited microscopic sections of the cord. The patient, a woman, aged thirty-one, had died, after four days' stay in Bellevue Hospital, with acute alcoholism and alcoholic paraplegia. At the autopsy the liver was found to be fatty and much enlarged, weighing eight to ten pounds; the kidneys large, the cortex thickened, and the markings indistinct; the brain showed much extravasation around the blood-vessels. There had been a leptomeningitis about the spinal cord, especially marked over the posterior part and involving the posterior nerve roots. Degenerative changes were found in the posterior columns, most marked near the periphery. The interstitial increase had not been confined to one system of fibers; it had extended to a lesser degree through the lateral columns of the cord. In the sciatic and tibial nerves there had been considerable increase of interstitial tissue, and in some places a disappearance of axis cylinders. This case was presented as one of ascending degenerative changes and as showing that alcoholic paralysis might involve lesions not of the periphery only, but also of the central nervous system. The author referred to Schaffer's and other cases corroborative of this statement.

Dr. DANA, who had had charge of this case at Bellevue, stated that the cord had been so badly hardened that good sections had been obtained with difficulty. Still the leptomeningitis and ascending degeneration in the cord had been conclusively demonstrated. He held the opinion that central lesions might sometimes occur in alcoholic cases.

Septic Peripheral Neuritis due to Pyelo-nephritis.—Dr. DANA then exhibited a case of this disease with the following history: John L., aged twenty one, was admitted to hospital December 13, 1888, with symptoms of acute articular rheumatism affecting all the extremities. There was no history of alcoholism or venereal disease. There were pus and albumin in the urine, continuing five weeks. In the middle of January paralysis came on, the rheumatism abating. There were anæsthesia and burning pains. The nerves affected were the ulnar and median of each arm and the anterior tibial of each leg. Atrophy and degenerative reaction appeared. Improvement began about March 16th. Electrical examinations in April, 1889, showed degenerative reaction complete in the flexors of the right arm and partial in those of the left. The patient was now improving very slowly, but there was still sensory and motor paralysis of arms. The speaker regarded the articular affection as a pseudo-rheumatic disorder due to septicæmia. It had not responded to the usual remedies.

Dr. SACHS said that if there was any question as to the diagnosis of the nervous affection it would lie between peripheral neuritis and atrophy following joint lesions. But the anæsthesia in this case was conclusive in corroborating Dr. Dana's diagnosis.

Peripheral Paralyses due to Carbonic-oxide Poisoning.—The PRESIDENT read a paper with this title. (To be published.)

Dr. SACHS thought that an excellent case had been made out for the author's carbonic-oxide theory. Numerous cases of musculo-spiral paralysis generally credited to pressure might possibly have such an origin. It was a suggestion that ought to be entertained.

Dr. STARR said the cases reported were interesting, and no doubt peripheral in their nature. But we should be cautious in ascribing unilateral paralyses to a general intoxicant in the system. Other poisons occasioning paralysis caused symmetrical lesions, as exemplified in poisoning with alcohol, lead, or arsenic, and in diphtheria, where the injuries were always bilateral. He was aware that of course, as in lead-poisoning, the paralysis was sometimes more marked upon one side than the other. This was, therefore, a presumption against the course ascribed by Dr. Jacoby. What was the cause, then? He described cases of coma of his own, where patients lying for many hours would have pressure-paralysis of the ulnar or other nerves. In another case a patient had paralysis of the adductors of the arm after a uræmic convulsion, which was ascribed to the grasp of the attendant. The speaker thought pressure of some sort more probable as a cause in the cases just portrayed than carbonic oxide.

Dr. SACHS stated that carbonic oxide differed from the other poisons in the rapidity of its effects. Those mentioned by Dr. Starr were very slow. In such rapid cases as these it might not be safe to apply the symmetrical rule.

Dr. DANA regarded the cases as due to the action of both elements. In coma, for instance, very slight pressure might produce paralysis where ordinarily it did not. The paralyses so frequent in alcoholic intoxication were explicable in this way. Carbonic oxide might affect the system in a similar manner.

The President said that the same objections had been made in cases of ether and osmic-acid injections. He did not consider his position beyond question, but, with the two other cases in literature added to his own, the theory advanced was tenable.

Examination of the Insane.—Dr. ALLEN FITCH then read a paper upon this subject, in which he showed that the usual certificates of insanity were not commitments in a correct sense, and that physicians were not responsible for the patient after his entry into an asylum. He considered the physical symptoms of more importance than any other upon which to form an opinion of insanity. It was not always possible to classify the disease in early examinations, nor best to do so in the certificates. He showed that in nearly all cases that came before the courts on writs of *habeas corpus* the persons were discharged, notwithstanding that nearly all were insane. Physicians should have had actual experience in asylums to be competent to examine the insane. He emphasized the value of a physical examination, and said that in feigned insanity there would be little opportunity for mistake were more attention given to these physical peculiarities. He then related numerous interesting cases in illustration of various points in his paper. He thought heredity had no bearing on such kinds of insanity as the puerperal form and general paresis. He then presented for the consideration of the society the "Gallup Lunacy Bill," now in the hands of the Governor of the State of New York awaiting his signature to become law. Some of the bad features of this bill were considerably discussed by Dr. Starr, Dr. Dana, Dr. Douglas, and Dr. Sachs, and a resolution was unanimously passed disapproving of the bill and requesting the Governor to have it carefully reviewed by the Commissioners in Lunacy before signing it.

Miscellany.

The Cartwright Prize.—At the recent commencement of the College of Physicians and Surgeons of New York it was announced that the Cartwright Prize had been awarded to an essay written conjointly by Dr. Hobart A. Hare and Dr. Edward Martin, of Philadelphia. But

the successful competitors voluntarily surrendered the prize because their essay had just been awarded a prize elsewhere. It appears that the essay had been put into competition for both prizes, with the expectation that the decision of one prize would be made early enough to permit them to withdraw from the second competition in case they were successful in the first. But owing to delay in the decision of the prize which should have been announced first, and to absence of the authors from home when the announcement was finally made, there was no opportunity for the intended withdrawal before the award of the Cartwright Prize was published. The award of the Cartwright Prize has consequently been reconsidered, and the prize has been granted to Dr. Ira Van Gieson, assistant instructor in normal histology in the College of Physicians and Surgeons of New York, for his essay entitled "Studies in Neural Pathology, embracing (1) a Report of a Case of Syringomyelia, and (2) a Contribution to the Pathology of the Laryngeal and other Crises in Tabes Dorsalis."

[Signed.] CHARLES MCBURNEY, M. D., *President of the Council of the Alumni of the College of Physicians and Surgeons, New York,*

GEORGE C. FREEBORN, M. D.,

W. P. NORTHRUP, M. D.,

B. FARQUHAR CURTIS, M. D.,

Prize Committee.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending July 12th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—										
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhoid.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	July 6.	1,572,199	956	..	..	..	..	..	..	5	7	18	3	11
Philadelphia, Pa.	July 6.	1,040,245	422	..	..	..	..	..	..	4	..	4	..	3
Brooklyn, N. Y.	July 6.	834,607	484	..	..	..	..	..	..	1	1	12	1	5
Baltimore, Md.	July 6.	500,343	280	..	..	..	..	..	..	3	..	..	..	..
St. Louis, Mo.	July 8.	440,000	165	..	..	..	..	..	..	1	1	..	..	..
Cincinnati, Ohio.	July 6.	325,000	151	..	..	..	..	..	..	1	1	6	9	..
New Orleans, La.	June 29.	254,000	108	..	..	..	..	..	..	2	..	2	3	..
Louisville, Ky.	July 6.	227,000	69	..	..	..	..	..	..	1	..	1	..	..
Washington, D. C.	July 6.	225,000	120	..	..	..	..	..	..	4	..	1	..	1
Kansas City, Mo.	July 6.	180,000	42	..	..	..	..	..	..	1	..	2	..	..
Rochester, N. Y.	July 5.	130,000	24	..	..	..	..	..	..	1	..	2	..	2
Providence, R. I.	July 6.	127,000	50	..	..	..	..	..	..	1	4	1	2	..
Richmond, Va.	July 6.	100,000	48	..	..	..	..	..	..	1	..	..	..	1
Denver, Col.	July 5.	100,000	24	..	..	..	..	..	..	1	..	1	..	..
Toledo, Ohio	July 5.	83,500	17	..	..	..	..	..	..	..	..	1	..	..
Fall River, Mass.	July 6.	69,000	32	..	..	..	..	..	..	..	..	..	..	..
Nashville, Tenn.	July 6.	65,153	21	..	..	..	..	..	..	..	..	1	..	..
Charleston, S. C.	July 6.	60,145	37	..	..	..	..	..	..	1	..	..	..	..
Lynn, Mass.	July 6.	50,000	14	..	..	..	..	..	..	2	..	..	..	..
Manchester, N. H.	June 29.	42,000	24	..	..	..	..	..	..	1	..	..	..	..
Galveston, Texas.	June 28.	40,000	13	..	..	..	..	..	..	2	..	..	..	1
San Diego, Cal.	June 29.	32,000	1	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	July 6.	30,000	9	..	..	..	..	..	..	1	..	..	..	..
Altoona, Pa.	June 29.	30,000	13	..	..	..	..	..	..	1	..	1	..	..
Altoona, Pa.	July 6.	30,000	5	..	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	July 6.	26,000	7	..	..	..	..	..	..	..	..	1	..	..
Haverhill, Mass.	July 5.	25,000	11	..	..	..	..	..	..	..	..	..	..	..
Newport, R. I.	July 4.	22,000	5	..	..	..	..	..	..	..	..	..	..	..
Newton, Mass.	July 6.	21,553	8	..	..	..	..	..	..	..	..	..	..	..
Keokuk, Iowa.	July 6.	16,000	3	..	..	..	..	..	..	..	..	1	..	..
Rock Island, Ill.	July 7.	16,000	1	..	..	..	..	..	..	..	..	1	..	..
Pensacola, Fla.	July 6.	15,600	7	..	..	..	..	..	..	..	..	..	..	1

The Soden Springs.—Sir Morell Mackenzie writes, in his "Journal of Laryngology and Rhinology," as follows: "Most of the German saline springs are situated on the range of the Taunus Hills. Of these, unquestionably, one of the very best is Soden. Containing, as it does, some twenty-three springs with a temperature varying between 12° to 18° C., and with one thermal spring of the temperature of 30° C., the waters of which are charged with chloride of sodium in varying degrees up to 116 grammes to the litre, and some of which are further charged with carbonic acid (notably the Champagnerbrunn), the health resort of Soden is, though at present one of the less known of the German spas, unquestionably one of the very best places for the treatment of pulmonary and catarrhal complaints. Additional advantages are the complete protection of the village from north winds, the comparatively great

altitude, and the equable climate, which make it, of all others in Germany, the resort most suitable for the treatment of phthisis, either of the throat or lungs, and catarrhal conditions generally. No spa possesses the peculiar and distinctive advantages of Soden. Though a small amount of iron is present in the waters, they are not on that account contra-indicated in the treatment of incipient phthisis. Compressed pastilles of Soden water are now an article of commerce, as well as the mineral waters. These are made from two of the well-waters, and, containing a large amount of chloride of sodium, are particularly serviceable in pharyngeal catarrhs, and may even in some degree be used where it is desired to obtain the effect of the Soden treatment in persons who are unable to make the necessary journey to the spa itself."

ANSWERS TO CORRESPONDENTS.

No. 276.—The region about Tannersville, which is the name of the town you indicate.

No. 277.—Your patient had probably swallowed the ova of some variety of fly, and passed the larvæ. The occurrence is not very rare. It sometimes gives rise to considerable irritation.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.



Tubercular Type of Leprosy.



Mixed Type of Leprosy.



Tubercular Leprosy.

Anæsthetic Leprosy.

Original Communications.

PERSONAL OBSERVATIONS OF LEPROSY
IN MEXICO AND THE SANDWICH ISLANDS.*

BY PRINCE A. MORROW, A. M., M. D.

MR. PRESIDENT AND FELLOWS OF THE ACADEMY: I should, perhaps, apologize for not having prepared a systematic paper upon the subject of the evening. I have thought, however, that the result of my personal observations of leprosy, at least so far as its clinical features are concerned, might be more effectively, and at the same time attractively, presented by means of photographic illustrations taken from life. I shall therefore, after a few general remarks, have the pleasure of exhibiting before you lantern slides illustrating not only the typical forms of the disease, but also the various phases which these different forms assume in the process of their evolution.

In the first place, I may remark that by the great majority of the profession leprosy is looked upon as possessing at the present day only a historical interest. It is classed in the same category as the pestilences and plagues which formerly swept away entire populations and devastated countries, but which are now practically extinct. Unfortunately, leprosy can not be relegated to the past; it is still a living, actual reality, and to-day prevails over more than one fourth the habitable surface of the globe. By reference to the map, the red shadings of which indicate the present geographical distribution of leprosy, it will be seen that it extends from the tropics to the arctic regions, embracing every variety of soil and climate and the most diverse races and nationalities. While it affects principally maritime populations, inland countries are by no means exempt; it prevails in both marshy and mountainous regions, in the lowlands of Louisiana as well as in the elevated tablelands of Mexico.

I would call attention to the fact that this extensive distribution of leprosy has a most important bearing upon its ætiology. As is well known, racial peculiarities, conditions of soil, of climate, and especially of food, have been assigned as ætiological factors. It is evident, however, that the widespread and diversified distribution of the disease precludes the possibility of any of these agencies being invoked as efficient causes.

It would not be possible to give an accurate compilation of the number of lepers upon the face of the earth at the present day. In India it has been estimated that there are over two hundred and fifty thousand; in China, Japan, Africa, and Egypt there are large numbers. In Europe the most important center of the disease in the present century is in Norway and Sweden.

The development of leprosy in a country previously exempt from the disease can always be traced to its importation from an infected center. The spread of leprosy through-

out a great portion of Europe early in our present era may be traced along the routes of the Roman armies, and its general diffusion throughout Christendom in the eleventh, twelfth, and thirteenth centuries was materially influenced by the return of the Crusaders. In the Western Hemisphere leprosy was first introduced into Central and South America by Portuguese traders, in Mexico probably by the Spanish, and in Canada by the French *émigrés*. It persists in New Brunswick at the present day, the most important center being at Tracadie.

In our own country the introduction of leprosy may be traced to at least four separate and distinct sources. In Louisiana it was carried by the Acadians, in the northwestern States of Iowa, Illinois, Wisconsin, and Minnesota by the Scandinavian colonists, along the Pacific coast in California and Oregon by the Chinese, and along the southern Atlantic coast it was brought from the West Indies. In Salt Lake City the disease was imported by a colony of Kanaka women brought by the Mormons from the Sandwich Islands.

My own observation of leprosy during the past winter began at New Orleans, where, it will be remembered, Dr. Blanc has recently reported the existence of forty-two cases. I also visited the Tèche River district, where there have long existed two leprous centers—one at St. Martinsville, the other at Bayou Lafouche. I had no opportunity of examining the subjects at St. Martinsville, as they had been subjected to a disagreeable newspaper notoriety and kept themselves secluded from observation. Along the line of the Southern Pacific Railroad, at San Antonio and other points, I learned of the existence of scattered cases. In Mexico I saw a number of cases at the San Pablo Hospital and in the streets of the city. In California I received reports of about twenty cases, but only had the opportunity of examining six which were in the pest-house of San Francisco.

The Hawaiian or Sandwich Islands afford to-day, perhaps, the best field for the observation and study of leprosy of any leprous center in the world. The disease is of comparatively recent introduction. Certain elements of confusion which have surrounded its ætiology in other countries may here be eliminated: the influence of contagion, of heredity, of racial peculiarities, and of certain conditions which have contributed to the rapid diffusion of the disease may be traced with precision. Thanks to the rigid system of segregation enforced by the board of health, the leper settlement of Molokai, in which eleven hundred lepers are gathered, affords abundant opportunities for the clinical study of every possible form and phase of the disease.

Before entering into an exposition of the clinical features of leprosy it may be well to briefly indicate the present status of our knowledge of the disease. It is the reproach of medical science that a disease which has been characterized as the most ancient and the most exclusively human of all diseases should, after centuries of observation, be so imperfectly understood. We know something of its nature, its clinical features and course, its diagnosis and prognosis; but there are many essential points connected with its ætiology, the degree and conditions of its contagiousness, its

* Remarks made before the New York Academy of Medicine, June 6, 1889, in connection with the exhibition of fifty lantern slides of typical forms of leprosy.

modes of propagation, concerning which our knowledge is incomplete and indefinite.

The facts of our positive knowledge of leprosy may be thus formulated :

Leprosy is a parasitic disease ; the bacillus of leprosy has a definite form, a slow rate of development, and is endowed with an extraordinary vital resistance, presenting many analogies with the bacillus of tuberculosis.

Like all specific microbes, it has an elective affinity or predilection for certain tissues and fluids of the organism. The bacilli occur in all forms and stages of leprosy ; they are found in both the diffuse and nodular infiltrations of the skin and mucous membranes, in the connective tissue of the peripheral nerves, in the cornea, in the cartilages, and in the liver, spleen, spermatic tubes, and testicles. They are found abundantly in the lymphatic glands and spaces. They are absent from the blood and the physiological secretions, such as the tears, saliva, milk, semen, urine, etc. It is worthy of note, however, that when the nasal, pharyngeal, and intestinal mucous membranes are the seat of leprosy lesions the secretions from these surfaces swarm with bacilli.

Leprosy has an exclusive origin ; it is invariably derived from the lesions or secretions of a person similarly diseased ; it never originates spontaneously, nor does its virulent principle attach to the soil, the water, or the food. Its origin and spread can always be traced to human contact. It is not inoculable to the lower animals, as is abundantly proved by the negative results of numerous experiments. The question of its inoculability to man has until now always been decided in the negative, as the inoculation experiments made by Campana and others have invariably failed, the only result being a septic lymphangitis. In September, 1884, Dr. Arning inoculated a Hawaiian convict, Keanu, previously free from all leprosy taint. This man had been condemned to penal servitude for life, and special care was taken that he should not be exposed to contagion by contact with other lepers. For a long time this experiment was regarded as a failure, but a few months ago Keanu developed unmistakable signs of tubercular leprosy and was sent to the leper settlement at Molokai. Upon the occasion of my recent visit I excised a small subcutaneous tubercle and a portion of the overlying skin. Numerous sections of this specimen were made by my associate, Dr. Fordyce, and in all, the presence of bacilli was demonstrated. (These specimens were shown under the microscope.)

We know, further, that leprosy has a prolonged but somewhat indefinite period of incubation, a slow and irregular course of development, a characteristic and well-defined symptomatology rendering its diagnosis easy, and that its prognostic significance is most grave : it progresses almost invariably to a fatal termination. The period of incubation of leprosy is generally placed at from three to five years. Examples have been recorded in which this period has been materially lessened or prolonged to seven, ten, and even fifteen years or longer ; it depends largely upon individual capacity of resistance. It will be readily appreciated that, since the disease has no initial lesion and the early symptoms are quite indefinite and equivocal, it is difficult, if not

impossible, to determine the exact interval between contagious exposure and the first outbreak of undoubted symptoms.

As there is some confusion in the terms used in designating the different forms of the disease, I may say that by modern authorities three types of the disease are recognized which, while pathologically similar, are clinically distinct. When the morbid deposits occur upon the skin and mucous membranes in the shape of macules and nodules, the form of the disease is termed tegumentary or *tubercular* ; when they are centered upon the peripheral nerves, it is termed tropho-neurotic or *anæsthetic*. There is, in a certain proportion of cases, an admixture of both forms in the same individual, the lesions peculiar to one or the other predominating ; this combination constitutes what is known as the *mixed type* of leprosy.

In addition to these two typical forms of leprosy and the series of symptoms common to both which make up the mixed form, certain writers have described a macular form. There is, however, no good basis for this further division ; macular lesions may be met with in any of the forms of leprosy ; they do not constitute a type, but simply represent a phase in the evolution of the disease.

The relative frequency of these three types varies in different countries and under different conditions. In the Sandwich Islands about one half the cases are of the tubercular type, about one third are anæsthetic, and the remaining one sixth represent the mixed form. The tubercular form is most progressive and rapidly fatal, the anæsthetic the least so, and the mixed form intermediate between the two.

As the clinical appearances of the different forms of leprosy will be fully illustrated in the lantern slides presently to be shown, I shall not occupy your time with a verbal description.

Having thus summarized the facts of our positive knowledge, I may briefly refer to certain moot points connected with leprosy. When we come to the consideration of the question of its contagiousness, the precise conditions under which contagion takes place, the various modes of infection, the influence of heredity, etc., it must be confessed that the teachings of science are by no means fixed and definite.

As regards the first point, it may be said that a belief in the contagiousness of leprosy has been universally held from the earliest ages until within recent times. All the prophylactic measures contained in the Levitical regulations, as well as those enforced in mediæval times, for the suppression of the disease, were based upon the recognition of the fact that every leper was a possible source of danger to all with whom he came in contact.

About thirty years ago the contagiousness of leprosy began to be questioned, and in 1867 the Royal College of Physicians of London formulated the dogma that leprosy was not a contagious disease. This opinion was generally accepted by the profession in Europe, although it may be said that the dermatologists of this country have never subscribed to this doctrine. In 1885, when the famous discussion upon the contagiousness of leprosy took place before

the French Academy of Medicine, it transpired that only three physicians in France upheld the doctrine of contagion. In 1888, when this discussion was again reopened, the partisans of contagion were much more numerous, but among the non-contagionists were numbered some of the most distinguished members of the French Academy.

It will, of course, be impossible, within the brief time at my disposal this evening, to enter into a consideration of the various arguments *pro* and *con* which have been advanced toward the determination of this question. As I propose to submit only the results of my personal observations, I may say that the facts of the development and spread of leprosy in the Sandwich Islands furnish the most abundant and conclusive proof of its eminent contagiousness. Upon no other possible ground can be explained the remarkable and rapid dissemination of the disease which, within the short space of a single generation, has decimated the population of these islands. At the present day from five to ten per cent. of the entire native population are affected with leprosy, while many foreigners coming from countries where leprosy is not endemic, and in whom no hereditary taint can possibly be alleged, have fallen victims to the disease.

In my examinations of numerous cases there was afforded in almost every instance a history of known exposure by sexual or other intimate relations with lepers. Another proof of contagion may be found in the fact that of the Kokuas who go to the leper settlement at Molokai as helpers or nurses, a large percentage contract the disease. To take only the statistics of the past two years, the president of the board of health in his report for 1888 states: Of sixty-six Kokuas who went to the settlement presumably healthy and free from all manifestations of the disease, twenty-three were found to present unmistakable signs of leprosy, and eleven more presented symptoms which caused us to declare them "suspected lepers."

On the other hand, it must be admitted that there are numerous instances of Kokuas living in prolonged and intimate contact with lepers who have not developed the disease. In Dr. Mouritz's report for 1886, forty-eight cases are cited, giving an average exposure of fifteen years to intimate contact, in which the subjects remain entirely exempt from all manifestations. This prolonged exemption does not, however, guarantee an absolute immunity for the future. One of the cases cited was that of the washerwoman of the hospital, who had washed the soiled clothing of the worst patients for seventeen years. In addition, she had lived with two leper husbands in succession, and yet in 1886 she was hale, hearty, and apparently healthy. Upon the occasion of my recent visit to the settlement this woman was suffering from undoubted manifestations of the disease.

The negative proofs of contagion are, however, so overshadowed by the immense mass of positive clinical testimony that they fall to the ground. They simply prove that there is nothing constant in contagion; that infection is not inevitable; that, in order that contagion may operate, a susceptibility or receptivity on the part of the individual is essential; and, further, that, owing to individual peculiarities, some persons are endowed with a capacity of resistance

which renders them absolutely refractory to its contagious activity.

As regards the modes of infection, our knowledge is by no means definite. It is probable that in the immense majority of cases the disease is propagated through sexual intercourse. This mode of infection is rendered almost certain by the observed fact that healthy individuals having sexual relations with lepers almost invariably become contaminated. The liability to the disease from exposure of this kind is so generally recognized that the husband or wife of a leper, though apparently sound, is readily admitted to the leper settlement as a Kokuu, on the presumption that the germs of the disease have already been implanted in his or her system.

It is also probable that the virulent principle of leprosy may find entrance to a healthy organism through cracks, fissures, or abrasions of the integument or mucous membranes. It may possibly be inoculated by means of the bites of insects, such as flies or mosquitoes, or by animal parasites, such as the *Acarus scabiei*. This mode of infection is well attested in the case of elephantiasis Arabum. It is worthy of note that the latter disease prevails extensively in the Samoan Islands, while it is unknown in the Sandwich Islands.

Inhalation is another assumed mode of contagion, but it rests upon presumptive rather than positive proof.

Vaccination is believed by the natives as well as by many intelligent physicians to be a potent agency in the rapid diffusion of leprosy through the islands. It must be remembered that until recently vaccination was performed by unskillful persons, human virus was used, and no distinction was made between a healthy person and a leper as the vaccinifer. The fact is incontestable that, after the general vaccination of the natives, numerous leprosy centers developed in various parts of the islands where the disease had previously been unknown. Arning demonstrated the plentiful presence of bacilli in the lymph and crusts of vaccine pustules in lepers.

There are many other interesting points in connection with contagion to which I might refer did time permit; thus, for example:

At what period in the evolution of leprosy does the system become endowed with contagious activity? Is it during the prodromal stage or during the eruptive stage, or is it delayed until the tubercles have softened and broken down?

Are the lesions of the anæsthetic form contagious? The bacillus is not found in the chronic sores or the necrosed tissues and bones of the anæsthetic leper. Numerous and repeated examinations of sections of an amputated finger showed no bacilli.

Another point of interest: A woman may have several husbands in succession who become lepers and she remains apparently exempt. Is the disease latent in this woman, powerless to produce general accidents, yet sufficiently active to contaminate others?

Finally, there remains to be considered the question of heredity. The traditional belief in the hereditary transmission of leprosy has rarely been questioned. It has gen-

erally been regarded as the principal mode of the propagation and perpetuation of the disease. In all ages and in all countries marriage has been prohibited between lepers, and its development in one partner has been accepted, not only as a sufficient pretext, but an urgent argument, for the dissolution of the marriage tie.

The history of the development of leprosy in the Hawaiian Islands would seem to show that here at least heredity has played an insignificant if not an inappreciable rôle in the propagation of the disease. The following facts may be stated: There is no authentic record of a congenital case of leprosy. I secured the placenta, cord, and portions of the body of a child still-born at full term, of leprosy parents. Repeated examinations of these specimens made by Dr. Fordyce showed the absence of bacilli. Leprosy never develops until the third or fifth year, a period which corresponds to the classic period of incubation of the acquired disease. In the immense majority of cases the first manifestations of leprosy occur from the thirtieth to the fiftieth year. In the next place, lepers are almost always sterile. Only two children were born in the leper settlement in the first five years after its establishment; in the next five years only three children were born of parents both leprosy. In 1886 Dr. Mouritz collected statistics of twenty-six children born in the settlement, whose ages ranged from three to fourteen years. Of these, nine had become lepers, while seventeen showed no signs of the disease. Considering the multitudinous chances of post-natal contagion from intimate contact with their leprosy parents, it seems altogether probable that if these nine children had been immediately removed they might have escaped the disease.

The exemption of the offspring of leprosy parents from the parental disease was so frequently observed that in 1885 the Kapiolani Home was established at Honolulu, where these children might be cared for and kept under surveillance as "suspects" until evidences of the disease might be manifest. I am unable to give the statistics of this Home, but they are sufficiently favorable to justify the wisdom of this step.

My observations would seem to justify the conclusion that the influence of heredity in the transmission of leprosy must be regarded as an open question. It is probable that, as in tuberculosis, with which leprosy presents certain analogies, a predisposition to the disease rather than the actual germ is transmitted from parent to offspring.

Finally, there remains to be considered the practical question of the danger of the spread of leprosy in this country. As my remarks have already extended much beyond their proposed limit, I shall refer to this important subject but briefly.

In the determination of this question the facts of the development and spread of leprosy in other countries can not be ignored. The teachings of observation and experience show that in all countries invaded by leprosy its first approaches have been slow and insidious. To take the Sandwich Islands, for example, we find that for twenty years after the first case of leprosy was identified the disease spread slowly, without making sufficient advance to attract the attention of the health authorities. When they awak-

ened to the realization of the danger which threatened the public health, the disease had already gained such headway that they found it impossible to arrest its progress even by the most rigid system of segregation. It has continued to spread until now it threatens the ultimate extinction of the Hawaiian race.

Can any one doubt that if the disease had been promptly dealt with upon its first appearance, every leper removed or isolated from contact with the healthy, it might have been easily eradicated?

Its development may be aptly compared to a slow conflagration, easily extinguished at first, but which, neglected, gains such force and headway that it becomes uncontrollable and can not be checked until it exhausts the materials upon which it feeds.

Unquestionably, leprosy is slowly gaining ground in this country. The existence of forty-two cases in New Orleans, unearthed by Dr. Blanc, was a revelation and a surprise to the entire profession. It is quite significant that a large proportion of these cases were in natives of Louisiana who had never been outside the State. The report by Dr. Berger (in the "New York Medical Journal" of Jan. 5, 1889) of one hundred cases at Key West, where the existence of the disease was scarcely suspected, is no less significant. A rigid investigation would doubtless disclose numerous cases outside the several leprosy centers I have located, but which, for obvious reasons, are concealed, or their true nature unrecognized.

Do these facts portend the spread of leprosy in this country? The seeds of the disease are sufficiently abundant; the only question is whether the conditions of soil are suitable for their germination. Either we must admit that this danger exists, or we must assume that, owing to the better physical stamina of our people and the improved hygienic conditions under which we live, the soil is sterile and the seed will fail to propagate. We are not justified in the assumption that susceptibility to leprosy is extinguished by civilization, or that its potentiality for mischief is enfeebled or destroyed by improved modes of living. It is to be remembered that the spread of leprosy in the Sandwich Islands has been coincident with an advanced civilization of the natives. The average Hawaiian of to-day is more cleanly in his person, better fed, and better housed than the majority of the tenement-house population in our large cities.

After all, the danger of the spread of leprosy in the United States resolves itself into a question of the contagiousness of the disease. If leprosy is a communicable disease, then it follows that every leper must be regarded as a possible source of danger to every one with whom he may come into intimate contact. The question to be decided is not the fact, but the degree of danger—whether it rises to the magnitude of a serious menace to the public health and demands State legislation for its suppression.

My own personal belief is that the extensive spread of leprosy in this country must be regarded as a possibility, rather than a strong probability. Still, in dealing with a disease with which medical science has shown its utter inability to cope, except by prophylactic measures, it becomes

the manifest duty of the medical profession, in their capacity as guardians of the public health, to enlighten our legislative authorities as to this possible danger, and urge them to adopt measures for the isolation of every leper in our midst, and especially to prevent the immigration from foreign countries of those who bear in their systems the seeds of this frightful malady.

NERVOUS SYMPTOMS CAUSED BY FUNCTIONAL GASTRO-INTESTINAL DISORDERS.

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THE following clinical history is, in many respects, a good illustration of a group of cases characterized by gastro-intestinal disturbance and marked nervous symptoms. It tends to show in an interesting manner how imperfect digestion may, in a neurotic patient, cause most persistent and alarming manifestations. As will be seen, these symptoms and nervous phenomena may be very numerous and, in aggravated cases, may display themselves throughout the entire system. This is possible because of the intricate relations and the mysterious sympathies existing between the processes of organic life, the nervous system, and the mind. Hence it is not uncommon to meet with cases in which a large number of nervous symptoms, as well as a perverted state of the emotions and mind, are chiefly due to irritation by improper foods and the effects of gastro-intestinal disease. These cases are most common among city business men who, by improper food, irregular and hurried eating, and intense and prolonged mental strain, bring on nervous excitability, indigestion, and subsequent exhaustion of vital power.

These preliminary remarks will be largely confirmed by the history of a case in which functional gastro-intestinal disorder and many forms of reflex nervous irritation prevailed for a long time, and were finally brought under control by a proper regulation of diet and treatment of the organs of digestion.

Mr. C., aged forty-six, of a bilious nervous temperament, of good habits of life, and a lawyer by profession. His father suffered from catarrh of the stomach and bowels for many years, and then died of consumption. His mother is still living, about sixty-five years of age, and in fair health. The patient himself was healthy during childhood, but subject to pain in the limbs. When about fifteen years old he had diphtheria, which was followed by measles, and then very poor health, emaciation, and debility. He gradually recovered and worked on the farm, taught school, and attended college. About this period he experienced his first occasional suffering from indigestion, which seemed to be due to overeating or improper food. When twenty-two years of age he went into the army, and there suffered still more from indigestion, characterized by intestinal flatulence and pain. Two years later, while still in the army, he had typhoid pneumonia, which left him in poor health and with great weakness of the nervous system for nearly five months. Within six months he had another attack of typhoid pneumonia, and it was six months more before he completely

recovered. These attacks left him with a greatly enlarged liver, and it was nearly three years before the organ returned to its normal size. After the war he returned to civil life, his health improved very much, he engaged in the study of the law, and subsequently became a lecturer on that subject. After two years of hard work his nervous system broke down, and he suffered from general weakness, loss of appetite, and indigestion. Hoping that a change of climate would be beneficial, he moved to Cheyenne, Wyoming, and engaged in the practice of law. From 1867 to 1875 he had very good health, excepting for some indigestion and occasional temporary nervous "breakdowns" from overwork. During this time he was subject to frequent colds and bronchitis, which made him sick for a few days, and finally left him with naso-pharyngeal catarrh. In the year 1876 he was elected to Congress, and the circumstances incident thereto proved to be a great strain upon his nervous system. Indigestion, flatulence, and pain became more marked, and he suffered greatly from insomnia and various nervous manifestations. In 1877 he experienced a general breaking-down, characterized by indigestion, prostration, extreme insomnia, nervous irritability, inability to concentrate his mind, and pain and burning in the limbs. These symptoms continued to grow worse even under a more regulated life and medical treatment. Subsequently he took a trip to Europe, and this afforded temporary improvement. Returning to Washington, he soon grew worse, suffered greatly from indigestion, insomnia, pain in his limbs, and a sense of burning or heat in his feet, and finally became unable to attend to his official duties. At the expiration of his term in Congress he went to Hot Springs, Arkansas, where he remained two months and was again temporarily benefited. From there he returned to Cheyenne and resumed his professional work, but soon broke down, suffering from the same conditions and symptoms, but in a still more aggravated form. Hoping to find relief in rest and change, he traveled in California, and subsequently made a second trip to Europe. In addition to travel, he passed months at a time under systematic treatment at the hands of celebrated specialists for the treatment of nervous diseases; but during the last four years there has been but little, if any, cessation from suffering in his bowels and the manifold nervous conditions repeatedly referred to. When he came under treatment he had a tired, worn, and haggard look. He was suffering from aggravated indigestion, great distension and pain in his bowels, burning and lancinating pain in his legs and feet, and most persistent insomnia. As a rule, he was unable to sleep more than from two to four hours out of twenty-four unless under the influence of a hypnotic. Indeed, he had been obliged to resort to almost every form of sedative, including bromides, chloral, sulphonal, and morphine, in order to obtain even a moderate amount of sleep.

In concluding the history of this interesting case it is worth while to note again that, in the first place, there were the usual symptoms of indigestion beginning in childhood and lasting more or less for thirty years. From first to last the patient suffered from distress after taking food, acidity, flatulence, pain, great abdominal disturbance, grinding sensations in the stomach and bowels, constipation, and all the lesser symptoms of indigestion.

In the second place, going hand in hand with the above-described condition, there was a history of "leg-ache" in boyhood, gradually developing into neuralgic pains in the head, persistent insomnia, excessive nervous irritability, inability to concentrate the mind, numbness and tingling of the limbs, lancinating pains in the limbs, and localized burning sensations in the ankles and feet. From first to last he had been conscious of indigestion with its associated symptoms and miseries, and added thereto had been almost every form of suffering due to

reflex irritation of the nerve filaments of the gastro-intestinal tract. All of these conditions and symptoms steadily grew worse despite medical treatment and travel, until the patient became a constant sufferer and utterly unfitted for business or the enjoyment of life.

In these mixed cases of indigestion accompanied by marked nervous symptoms it is frequently difficult to decide just what condition one has to deal with. Indeed, it is often a problem calculated to perplex a careful diagnostician and make him appreciate more than ever the mysteries and complications of disease. That doubts should prevail and mistakes should occur is not strange when one considers what a host of symptoms may result from intestinal disorders and from an irritated, excited, impaired, and perverted state of the nervous system. In the majority of such instances, where the above-named conditions are mixed together, the diagnosis is made in favor of some nervous disorder and styled "nervous dyspepsia," "nervous irritation," or "nervous exhaustion." In fact, the prominence, urgency, and distressing character of the nervous symptoms are allowed to overshadow those that really point to the underlying cause. This was well illustrated in the case under consideration, for the nervous symptoms were so prominent and persistent that they misled both the patient and his many different physicians. One of the latter, a neurologist of national repute, treated him for many months for nervous exhaustion and nervous irritability, never giving more than passing attention to the symptoms of persistent functional disorders of digestion. These latter were called "nervous dyspepsia," and the assurance was given that they would pass away with the return of nerve force.

These facts hint at the difficulties attending this line of cases, and plainly indicate the paramount importance of first establishing an accurate diagnosis. This can be done in most instances by a careful analysis of the history of the case by following out certain general principles, and by a frequent study of the products of the system. The utility of such procedure will be seen as we advance in our study of the case under consideration.

1. The history in this case revealed the fact that indigestion had prevailed more or less for many years—indeed, from boyhood. It was the primary functional disturbance, and had always preceded or existed in concurrence with nervous manifestations. Latterly it had become so marked that there were persistent acidity, flatulent disturbance, gripping pains, and undefinable abdominal distress. These facts and symptoms were, to say the least, highly suggestive and merited thorough investigation. Moreover, the patient was of a nervous or neurotic family and had a highly sensitive nervous organization. He was therefore, by virtue of hereditary tendency, predisposed to suffer from either direct or reflex irritation. All that was needed was an abnormal state of the secretions, improper food, acidity, and fermentation to irritate the nerve filaments of the stomach and bowels, and to cause pain and general nervous disturbance. Besides, to these inherent tendencies he had added that irritability frequently caused by hard work, constant anxiety, a great amount of care, professional strife, and business reverses. In such manner, predisposing and exciting causes

prevailed which would, beyond doubt, point to the probability that the seat of his troubles was in the gastro-intestinal tract.

2. In the second place, it is a general principle that a constant cause underlies a constant effect. It was rational to believe that constant disorder of digestion, accompanied by continual abdominal pains, burning sensations and lancinating pains in the legs, irritability of the nervous system, mental confusion, and intolerable wakefulness had a constant cause somewhere. It was equally rational to assign the cause to improper food and imperfect digestion, because the symptoms of each prevailed, and also because it is well known that gastro-intestinal irritation may be reflected to all parts of the body, causing most alarming symptoms. Moreover, it is established that constant acidity and fermentation in the stomach and bowels invariably give rise to lithæmia, oxaluria, or phosphaturia. The presence of either of these conditions of the system may so affect a susceptible nervous system as to cause neuralgias, twitching of groups of muscles, shooting and burning pains in the limbs, numbness and coldness in different parts of the body, imitative locomotor ataxia and paralysis, vertigo, violent headaches, and functional derangement of the mind. This fact has been elaborated in a masterly manner by Ralfe in his immensely valuable work on "morbid urine." He shows conclusively that there is a wonderful relation between an acid state of the system and a host of the most common and alarming nervous symptoms and functional nervous affections. It is also proper to add in this place that it is believed by many investigators at the present time that intestinal fermentation produces certain chemical gases and alkalis which, when absorbed into the blood, make a profound impression upon the nervous system. It is maintained that their absorption practically introduces a poison into the blood, followed by symptoms of disease which are vaguely attributed to various conditions. Brunton well said that "perhaps we are not yet sufficiently alive to the important results produced by the absorption from the intestinal canal of substances generated in it by fermentation or imperfect digestion. We recognize the danger of breathing gas from a sewer, but probably we do not sufficiently realize that noxious gases may be produced in the intestine, and, being absorbed into the circulation, may produce symptoms of poisoning."

3. The prevalence of these general conditions and probabilities pointed to the necessity of adopting all the usual methods of diagnosis—such as inspection, palpation, percussion, and, in addition, an analytical study of the blood, urine, and feces. Inspection revealed in this case that the abdomen was greatly distended and abnormally prominent. Palpation and percussion disclosed that the stomach and bowels were full of gas and that there were points of tenderness over them. These marked evidences of gastro-intestinal disturbance, together with signs and symptoms of lesser importance, were verified by repeated microscopic studies of the blood. Such method showed the presence of mycoderma aceti, or what are better known as yeast ferments, or the absorbed products of acidity and fermentation. When these are found in the blood they are proof

positive that improper food is being taken, and that digestion is imperfect. In addition to careful and repeated study of the blood there was a thorough and daily examination of the urine. At first its specific gravity was about 1.030, and it contained an excess of phosphates and bile. The microscope showed uric-acid crystals, but no evidence of degeneration of tissue. It is the rule in these cases for the urine to be very dense with phosphates and bile, and to show more or less crystals of either uric acid or oxalate of lime. In this case constipation prevailed and the fecal discharges were variable.

Turning now from this rapid view of the history, causation, and diagnosis of this case, a few remarks will be made regarding the treatment it received.

In the first place, an effort was made to place the patient under the most favorable hygienic and moral conditions. He was located in a large airy room, and attended and accompanied by his wife and child. The help and encouragement of the wife were utilized as far as possible, with a view of steadying and maintaining a healthful mental condition. It was necessary to meet the tendency to mental irritability and depression in every possible way. With the favorable surroundings went the strictest injunctions as to complete relaxation from work, care, anxiety, and physical fatigue. It is useless to attempt to treat such patients unless the mind can rest and be diverted from the corroding worries incident to domestic and business life. It is safe to say that gastro-intestinal indigestion, accompanied by excessive nervous irritability, will never yield to any form of treatment unless these conditions obtain. The processes of digestion must be allowed all opportunity that is possible, and what nerve power there is must be saved for the promotion of organic functions. The law that rest and sleep, mental relaxation, and composure are absolutely essential to restoration needs to be imbedded in the mind of the patient. The patient must yield to this law in a cheerful, obedient, and helpful manner, as a condition precedent to recovery. In this instance mental and bodily rest was insisted upon, until the system was rested and refreshed. With a view to promoting nutrition, baths, friction, and daily massage were adopted, and served a useful purpose. These methods tended not only to work the nutriment into the system, but also to divert the blood and nerve currents from the brain to the functions of organic life. Afterward the invigorating effects of unobstructed fresh air and sunlight were sought, and the patient was advised to sit out of doors, and to take short walks and an occasional ride whenever the weather would admit. He was always enjoined, however, never to allow diversion and exercise to overtax his nervous system, and thus cause fatigue. It is believed that the attention given to these common-sense moral and hygienic regulations did much to bring about the improvement that soon supervened. In other words, they afforded the conditions that made still other efforts operative and helpful.

The next step in the management of this case was to place the patient on a suitable diet. The indications were for one that was light, palatable, easily digested, non-fermentable, and nutritious. These were cardinal conditions

that had to be met before any progress could be expected. It was not reasonable to try to cure with fermentable foods a case in which acidity, fermentation, and flatulence were sources of intolerable misery. Consequently, all sweet, starchy, and greasy foods, all fruits and vegetables, as well as everything containing acids, were displaced from his diet at the outset. The great object was not only to carefully eschew every indigestible substance, but to avoid the causes of acidity and fermentation. It was believed that the rigid exclusion of such causes would enable the stomach and bowels to regain their normal state, would favor the processes of digestion, and would avoid an immense amount of discomfort. With these definite ends in view, the patient was placed upon a carefully regulated animal diet, composed mostly of beefsteak, and the muscle pulp of beef prepared by a machine made for the purpose. The latter afforded him a simple, concentrated, digestible, and non-fermentable diet, yielding the maximum nourishment from the minimum effort. Of this he was allowed every four or five hours as much as his stomach would easily tolerate and digest. At times, as he became tired of this single preparation, he was allowed choice beefsteaks, which answered much the same purpose but were not so digestible. Besides directing this diet, every effort was made to know that it was completely digested from day to day. In these cases it is not enough to order a particular food, but it must be known that it is being entirely digested. This information should be obtained from day to day by careful inquiry, thorough examination of physical signs, and an analytical test of the blood, urine, and feces.

As soon as the machinery of the system gets to doing its work well, the physical signs of disease will disappear and the organic products will show good work. On the contrary, if it does not get to working well, physical signs of disease will prevail, the blood will show abnormal elements, the urine will be highly colored and heavy with excrementitious products, and the feces will show undigested food. It is wonderful how accurately and promptly physical signs and abnormal products will show whether the processes of digestion, absorption, and assimilation are going on as they should. In this case these conditions were watched more or less from day to day until it was found that the food was agreeing with the patient and the organs were doing their work well. Subsequently, as the patient improved, a larger amount and a wider range of food were allowed. At first he was given a small piece of stale bread, then from two to four ounces of milk, then a little game, and ultimately some vegetables. The effect of these additions was carefully watched, and they were continued or dispensed with as he was able or unable to digest and utilize them. As a result of this carefully selected and well-regulated diet, relief from gastro-intestinal pain soon ensued, and the host of secondary nervous symptoms grew beautifully less. In a single month he passed from constant wretchedness to a state of entire comfort. In other words, just as soon as the cause was removed, the miserable effects which had tormented him for years vanished.

The same degree of attention that was given to the regulation of his food was applied also to the regulation of his

drinks. He was at once deprived of such drinks as tea, coffee, milk, and stimulants, and placed upon the regulated use of hot water. He was directed to take a pint of hot water systematically by the clock an hour before each meal and the same length of time before going to bed. Or, in other words, the rule was for him to take his food every five hours and the hot water four hours after taking food. This allowed four hours for digestion without the presence and interference of a great quantity of liquid. Moreover, the use of a large amount of hot water tended to dissolve and wash downward any accumulation of tough, stringy acid and fermented mucus that was left in the stomach, thus preparing the way for the next meal. It also maintained the volume of the blood, stimulated the secretions, and favored a freer action of the liver, kidneys, and bowels. In short, the object was to quench thirst, keep the stomach cleansed of catarrhal mucus, aid downward action of the bowels, "flush out" the liver and kidneys, and maintain the specific gravity of the urine at about 1.015. The great utility of the internal use of hot water in the treatment of gastro-intestinal disease can not be overstated, but, like every other remedial agent, it must be used systematically, persistently, and for a definite purpose.

As regards medicinal treatment in this case, it is to be said that only simple remedies were used, being employed as the need was indicated. No effort was made to cure (?) the patient with medicines, but rather to put him in a condition to receive cure from the great and only sources of health—proper food, pure water, abundance of sunlight, and fresh air. Consequently only such remedies were used as tended to tone up the nervous system, stimulate the organs of digestion to better action, aid the digestion of food, and induce composure and rest of the nervous system. These were the four chief indications, and they were met as demanded from day to day. They pointed to the use of chinchona, nux vomica, damiana, salicin, cascara, pepsin, bromides, and sulphonal, which were about all the remedies required.

In conjunction with medicinal remedies went what may be styled thorough mental and moral treatment. The patient was seen daily, and great and constant effort was made to overcome the tendency to doubt, delusion, morbid imaginings, mental depression, and discouragement, so common to patients suffering from indigestion and nervous exhaustion. He was not only thoroughly examined each day, but also cheered, aroused, encouraged, reassured, advised, and rigidly held to the carefully systematized treatment now found useful in so many instances. The great object was to steady his mind, to appeal to his reason, to explain away doubts and morbid fancies, to insure co-operation in carrying out details, and to inspire hope. In this form of chronic cases, above all others, it is of the highest importance to thus gain control of the patients' emotions and mind, to lift them out of depression and evil apprehensions, and to give them a determinate action toward health. Indeed, satisfactory results are almost impossible unless persistent mental and moral suasion enters largely into the general management of the case.

In conclusion, it can be said that, as a result of this line of treatment, the patient improved from the very first, and

in three months felt able to pass from observation and return to his home, there to continue this treatment. He was not discharged cured, for in a case of such severity and long-standing the patient can not get entirely well in three months. A weakened and unreliable state of the organs of digestion lasts for a long time after the signs and symptoms of indigestion and nervous irritation have been relieved by a regulated diet and various remedies. There needs to be constant watching and judicious caution as to the quality and quantity of food taken, for many months elapse before the stomach and bowels become so strengthened as to manage a liberal mixed diet. Although not cured, he was so well started in that direction that his digestion was vastly improved, he was entirely free from gastro-intestinal pain and nervous irritability, the burning sensations in the feet and limbs had passed away, neuralgic pains in various parts of his body had all gone, mental confusion and depression were things of the past, and he was able to sleep from six to seven hours out of the twenty-four. In other words, removal of the cause, together with well-directed hygienic, moral, and medical treatment, had resulted in producing a satisfactory and comfortable effect.

NASAL BACTERIA IN HEALTH.*

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THE position which micro-organisms will ultimately take in their relation to the morbid processes of disease has not been determined as yet. Indeed, we seem now only at the beginning of an unknown region in which possibly lies hidden the mystery of the ætiology of many pathological changes. Encouragement in the region of preventive medicine, under which head we must include all that Listerism has done for surgery, lends zest to the attempts to follow the microbe into the human organism and there annihilate it. The almost complete failure thus far has given professional cynics an opportunity for a somewhat galling criticism. These failures are, no doubt, in a large measure due to our as yet very incomplete knowledge of the varying conditions and influences which complicate the relations of microbes to the human organism. Whatever opinion the clinician may have of the part played by them in the ætiology of the diseases he observes, even the most skeptical must admit that the burden of disproof has been thrown upon the doubters.

With the increased probability that many pulmonary and nasal diseases owe their origin, in a large degree, to micro-organisms, it becomes important that the bacterial contents of the respiratory tract in a state of health should be known. Before we are in a position to investigate a pathological process we must have a firm physiological basis on which to stand. Before we seek for a pathogenic micro-organism in disease we should know what exists in the situation in a condition of health. The ingress of all infective agents must, in the vast majority of cases, be through the

* Read before the Laryngological Section of the American Medical Association at its fortieth annual meeting.

nose or the mouth; those of the respiratory tract, as a rule, through the former; those of the alimentary tract, as a rule, through the latter. The bacterial contents of the mouth in health have been so thoroughly investigated by Biondi (1), Vignal (2), Netter (3), Fraenkel (4), and others that further researches would seem superfluous when our knowledge of the nasal micro-organisms in health is so slight. As laryngologists we are becoming more and more impressed with the necessity of normal nasal respiration and the harm of mouth breathing. In the further advance of nasal bacteriology we may find another reason to urge the importance of purely nasal respiration. When we remember the apparatus of Hesse (5) for air analysis, the configuration of the internal nose would seem admirably adapted to arrest the progress of microbes carried into it by the air current; and, still further, it has been conclusively proved that bacteria never rise from a damp surface, however strong the blast may be over it, unless carried along by some particle of water or mucus or solid matter. Hence we should expect to find innumerable varieties of bacterial forms derived from the air, and might well despair of reaching any definite conclusions in the matter. Besides the bacteria of phthisis and pneumonia and the microbe of diphtheria, whether it be the bacillus of Löffler or the streptococcus of Prudden, there seems good evidence that some purely intranasal diseases depend upon micro-organisms for their origin or their subsequent course. A perusal of the researches of Löwenberg (6), Klammann (7), Thost (8), Seifert (9), Strauch (10), Valentin (11), Hajek (12), Reimann (13), and others into the ætiology of ozæna and coryza must convince us of the truth of what Walb (14) says of ozæna.

"I am convinced," he says, "that the way opened by Löwenberg will lead to the discovery of the nature of ozæna. Whether the Löwenberg coccus or some other is the cause of ozæna is of no consequence; it must exist, and it is to be hoped that it will be found."

Whether there is a bacterial connection between coryza and pneumonia, as maintained by Thost (8), and further urged by Cardone (15), it is impossible, with our present knowledge, to form any opinion.

Notwithstanding the abundance of the literature to be found on the bacteria of nasal diseases, there is very little, in fact no systematic examination of the normal nasal secretions for bacteria recorded in the somewhat extended range of literature to which I have had access. However instructive the staining of nasal secretions for bacilli and cocci as a matter of technique may be, there is little or nothing else to be learned from it without the aid of the improved methods of cultivation tests. I have therefore omitted extended reference to this class of work. The mere presence of micro-organisms in nasal secretions was established many years ago. Bernard Fraenkel, in von Ziemssen's "Encyclopædia" in 1876, in his article on acute coryza, says:

"A large number of these little structures, recently so much spoken of and called micrococci, may generally be seen also covering the cells."

And he refers to Hueter (16) as maintaining these bodies to be the source of irritation in coryza. Herzog (17) in 1881 found many bacilli and cocci in normal and abnormal nasal

secretions, more abundant in the latter, and especially in fœtid nasal catarrh. Eugen Fraenkel (18), on the other hand, in 1882 stated that he could find no bacteria in the normal nose, and his work on ozæna, in the secretions of which he found four kinds of bacteria, has been widely quoted, but, in the light of our present bacterial knowledge, possesses on this point only historical interest. Later observations have all been made incidentally in connection with bacterial investigations of disease. Bernard Fraenkel (19) in 1886 found in the normal pharynx, besides the *Staphylococcus pyogenes aureus* and the *Staphylococcus pyogenes albus*, a micrococcus which often appeared as a diplococcus and did not liquefy gelatin. Probably the same coccus was found in the normal retro-pharynx by Hack (20), and fully described by his pupil Strauch (20). The latter asserts that it is also found in the nose, but less frequently and in smaller numbers. Both Löwenberg (6) and Hajek (12) failed to find micro-organisms at all constant or abundant in normal nasal secretions. Reimann (13), on the other hand, described two forms as nearly always found—one a plump round-ended bacillus, and the other a little coccus which occurred usually in pairs but often in longer chains. Considering the extensive and very thorough work done upon the bacterial contents of the mouth in health, it is singular that there should be such a lack of it in the nose.*

My own observations have been made during the last two years in the laboratory of the Alumni Association of the College of Physicians and Surgeons under the direction of Dr. T. M. Prudden, to whose kindness and careful oversight the little which may be of value in them is due. The material was drawn from the Dispensary of the Roosevelt Hospital. Although a number of other cases were examined, it is my purpose to record here only those investigations made in fairly normal cases, leaving the examinations in the other cases for further amplification and another occasion. The method of work was as follows: Portions of the nasal secretion were removed from the mucous membrane covering the turbinated bones and adjacent portions of the septum, in the loop of a long platinum needle previously sterilized in the flame. This was immediately plunged into two gelatin tubes, and streak cultivations were made upon two agar-agar plates. Thus, four inoculations were made from different portions of the nasal chambers in each case. Besides this, a number of dry cover-glass preparations were made of the nasal secretion in each case and stained by Gram's method and by simple double staining. These last frequently showed no bacteria when the cultivation tests proved their presence in great abundance. The gelatin tubes were plated according to Koch's method and pure cultivations obtained

* At the last meeting of the Russian congress in St. Petersburg, Besser reported having examined the nasal secretions of 81 patients, the bronchial secretions of 10, and the secretions of the frontal sinuses in 5. Out of the nasal and bronchial secretions he cultivated the Fraenkel-Weichselbaum diplococcus of pneumonia in 14 cases, the *Staphylococcus pyogenes aureus* in 14 cases, and the *Streptococcus pyogenes* in 7 cases. Unfortunately, I have not been able to procure the original article, and the reference in the "Centralblatt für Bacteriologie," Bd. v, No. 21, is incomplete, not giving the conditions under which they were found.

and transferred to cultivation-media tubes of agar-agar, five-per-cent. glycerin-agar, gelatin, bouillon, milk, and potatoes. The same was done with pure cultivations obtained from the streak cultivations on the agar plates. The growth characteristics were noted and compared with descriptions in the works of Flüggé, Fraenkel, Eisenberg, and others, and where close correspondence was observed their denominations were accepted. Those forms found not to correspond to any descriptions were, as a rule, carefully worked out and the records preserved, but it is unnecessary to describe them here, as they were only found in isolated cases. All the usual precautions were taken against contaminations and, in addition, only those colonies selected from the plates which were in sufficient numbers to preclude the possibility of contamination and to eliminate, as far as possible, those microbes which had only recently become nasal inhabitants and had not yet grown in the nasal secretions to any considerable numbers.

When one remembers the multitude of air bacteria which would naturally lodge against the nasal mucous membrane, and be only accidental visitors to a soil unsuited to them, this precaution will not seem uncalled for. In all cases care was taken to ascertain that no nasal douches of any kind had been previously used. Any one, even those unfamiliar with the technique of bacterial analysis, will appreciate the amount of work required where so many different forms had to be carefully worked out, and that may be pleaded as an excuse for the limited number of cases brought forward. In the ten cases mentioned, the condition of the mucous membrane was as nearly normal as possible, and even where insignificant changes were observed they are noted. The class of cases was not so diversified as would be desirable, as they were all in dispensary patients. I made several bacterial analyses of the air of the dispensary from time to time by Petri's and Sedgwick's methods and by exposure of agar plates. At no time was there any growth but those of simple air bacteria noted. The nasal bacterial forms were found to vary markedly with the state of the weather and of the streets. High winds and dry and dusty streets were sure to fill the noses with air bacteria. In rainy weather, or after several days of calm, or when snow was on the ground, aerial forms were much more rare. It seems to me there can be only one cause for this—viz., they tend to disappear because they have found a soil unfitted for their growth, and, according to the universal law of natural selection, give way to microbial forms more favored by the conditions. It certainly is not because they flow away in the secretions, because it is not only their absolute frequency which varies, but their frequency relative to other forms. The reaction of the secretion of the normal nose was found to be neutral or slightly alkaline.

CASE I.—A young man in fair health, with the exception of slight cough. No pulmonary lesion; slight hypertrophy of one turbinated bone; nose otherwise normal. A short, plump bacillus looking at times like a diplococcus; slow white growth on gelatin which it does not liquefy. Same on agar, spreading slightly on surface.

CASE II.—A young girl with slight tonsillar enlargement; nose normal; general health good. Bacterial analyses were

made on three separate occasions, and twice was found a nearly pure cultivation of the *Staphylococcus pyogenes aureus*. The tonsils were examined and the same growth was found there. Inoculations of pure bouillon cultivations in the jugular of rabbits set up purulent pericarditis and endocarditis, of which the animals died. The pus swarmed with the cocci.

CASE III.—A boy of seventeen who had a perforation of the septum and hard palate from a syphilitic process. All ulceration had long healed and the mucous membrane was normal in appearance. The *Staphylococcus pyogenes aureus* was found in large numbers and a moderate growth corresponding to the *Bacillus lactis aerogenes*.

CASE IV.—A man of thirty-five, who a few weeks previously had been discharged from Roosevelt Hospital after a severe operation for the removal of a thyroid tumor. The wound had healed by first intention. Left laryngeal paralysis resulted. The nose was perfectly normal in every way. The *Staphylococcus pyogenes aureus* and *albus* were both found, and abscesses were caused by the injections of pure bouillon cultivations of each beneath the skin of rabbits. From these abscesses new cultivations of the same growths were obtained in each case.

CASE V.—A child ten years old. No subjective nasal symptoms, but the mucous membrane of the nose was slightly hyperæmic. In this case also both the *Staphylococcus aureus* and *albus* were found, and positive results obtained from animal inoculations.

CASE VI.—A seamstress, aged sixteen. She had had considerable post-nasal catarrh, but no purulent secretion. Nose normal and health good. Two examinations six weeks apart were made. Each time in the nares there was found an abundant growth of the ordinary mold, the *Penicillium glaucum*. Each time pure cultivations of the *Streptococcus pyogenes* were obtained from the post-nasal space. A pure bouillon cultivation was injected beneath the skin of rabbits' ears and an erysipelatous inflammation produced, from the sanious pus of which cover-glass preparations were made showing abundant cocci in chains. At the second examination a cultivation of a gas-producing bacillus was also made from the tonsils. The most careful questioning could elicit no history of exposure to contagion of any kind. She herself was in the best of health except for the discomfort from her post-nasal catarrh.

CASE VII.—A girl, aged sixteen, cigarette-maker. There was slight hypertrophy of the nasal mucous membrane with some tonsillar injection. The *Staphylococcus pyogenes citreus* was found in the nose.

CASE VIII.—A child, aged four. Slight post-nasal catarrh and slightly enlarged tonsils. Nose normal. In it was found the *Micrococcus flavus desidens*.

CASE IX.—A man, aged nineteen, with follicular amygdalitis and post-nasal catarrh. This case presented considerable structural change, and I insert the record here because, in spite of the large amount of secretion present, only aerial forms were found. They were the *Micrococcus flavus desidens* and *Micrococcus cereus flavus*, and an undetermined coccus with a curious growth on agar and gelatin, a description of which would be out of place here.

CASE X.—A woman, aged twenty, with a slight attack of laryngitis. She was recovering from coryza and there was some mucous secretion in the nose. The bacterial contents were as follows:

1. *Staphylococcus pyogenes aureus*.
2. *Micrococcus flavus desidens*.
3. A tetrad resembling closely the descriptions of the *Micrococcus tetragenus*.
4. An undetermined coccus, with a white non-liquefying growth on gelatin and agar.

The three last cases were examined during windy, dusty weather, and illustrate well, especially in the last case, the unreliability of cover-glass preparations alone of the nasal secretions in determining bacterial species, as the morphological appearance in four out of the five organisms was the same.

To summarize: In six cases, the *Staphylococcus pyogenes*; in three cases, the *Micrococcus flavus desidens*; in one case, the *Bacillus lactis aerogenes*; in one case, the *Penicillium glaucum*; in one case, the *Micrococcus cereus flavus*; in one case, the *Micrococcus tetragenus*; once in each of three cases, different undescribed forms.

CASES.	Staphylococcus pyogenes, aureus, albus, and citreus.	Micrococcus flavus desidens.	Bacillus lactis aerogenes.	Penicillium glaucum.	Micrococcus cereus flavus.	Micrococcus tetragenus.	Different undescribed forms.
I.....							1
II.....	1						
III.....	1		1				
IV.....	1						
V.....	1						
VI.....				1			
VII.....	1	1					
VIII.....		1					
IX.....					1		1
X.....	1	1				1	1
Total.....	6	3	1	1	1	1	3

The air forms may be dismissed without further consideration. The *Micrococcus tetragenus*, found in only one case and in small numbers, need only receive a passing mention. In Case VI the only organism in the nasal chambers proper which was made out by two careful examinations at different periods was the ordinary mold—the *Penicillium glaucum*. It was in such great numbers that it possibly may have overshadowed the growth of other forms. Considering its great aerial frequency, it is singular that it was not oftener found. In this case the *Streptococcus pyogenes* was twice found in the naso-pharynx, which was the seat of a chronic catarrhal inflammation, but which showed few changes in the mucous membrane besides the reddening of the surface and the increased secretion of mucus. For its pathogenic significance in the air-passages the works of Netter (3 and 22), Prudden (21), and others may be referred to.

Our attention is therefore directed to the *Staphylococcus pyogenes*; the three varieties *aureus*, *albus*, and *citreus* need only be considered as one in their pathogenic significance. We know as yet too little concerning the conditions under which this organism exerts its characteristic influence to draw conclusions. It may be well, however, to refer to the statements of a few of the various workers in this field.

Ullmann (23) found the staphylococcus in the air in different situations and under varying conditions, as well as in the water of the river Spree. He and others found it in the earth, on the streets, and on the walls of various rooms and buildings. As to man, he says: "Fürbringer found it in the dirt under finger-nails, and Bumm in the folds of the nipples. Biondi obtained cultures of it from the saliva, and Fraenkel from the tonsils. I have found it not only on the buccal mucous membrane, in the saliva, the tonsils, the

pharynx, and vagina of healthy people and of animals, but in the œsophagus, intestinal tract, and bladders of recently killed animals. Lustgarten and Mannaberg found it constantly in the urethra. These investigations show that the staphylococcus is very widely distributed, and that it is found wherever living beings are."

From this we see that its very frequent occurrence in the nose forms no exception to the rule. It will require investigation of many more cases than those here cited to prove that it is the most frequent and abundant micro-organism in the nasal chambers. Netter (22), speaking of the influence of pathogenic micro-organisms in the mouth, nose, and ears, says: "The presence of the microbes is not enough. It is necessary that they should be present in sufficient quantity to triumph over the resistance which healthy anatomical structures offer them. It is necessary that their virulence should be sufficiently great, and we know that their virulence is not always the same."

He might have also said that the resistance offered them was not always the same. On this head the work of Bujwid (24) is suggestive. He found that, in round numbers, a billion *Staphylococci aurei* for a rabbit, a hundred millions to a billion for a rat, and a hundred millions for a mouse, could be injected beneath the skin of a healthy animal without result, no abscess forming. When, however, grape-sugar had been previously introduced into the animals' systems, they succumbed.*

Ribbert (25) and his pupils, Fleck (26) and Laehr (27), caused a catarrhal inflammation of the bronchi, with more or less broncho-pneumonia, by injections of pure cultivations of the staphylococcus into the trachea. Their investigations, as well as those of Wyssokowitsch (29), tend to show that the lungs or the adjacent bronchial lymphatic glands act as a sort of filter or as a place of destruction for the microbes, preventing their further penetration into the human organism.

Prudden (21) repeated the experiments of Fleck and Laehr, with like results. He also succeeded in causing broncho-pneumonia by injections of pure cultivations of the *Streptococcus diphtherie* and by injections of ammonia.

Lübbert (28) caused fibrino-purulent tracheitis and bronchitis by injections of a pure cultivation of the staphylococcus into the trachea. It is asserted by many investigators, and their assertions are based upon extensive experiments, that it is the pavement epithelium which prevents the entrance of various microbes into the subjacent structures and thence into the general system. The very general experience of laryngologists would hardly bear this out as regards the staphylococcus, since tonsils and uvula are cut without a fear of septic invasion, and in all the operations upon the mucous membranes of the mouth and nose this is the least danger we fear. If, however, a patient bites the operator's finger so as to break the skin, unless the wound is thoroughly washed out with an antiseptic, local suppura-

* Since this paper was written, the very valuable papers of Buchner ("Ctrbl. f. Baet.," iv, 25, v, 1) and Nissen ("Ztschr. f. Hygiene," vi, 3) have come under my observation. They give convincing proof that it is the albumin in the blood plasma that exercises the destructive influence on bacteria in the circulation.

tion often follows, and, occasionally, from this general sepsis.

I have mentioned these facts and observations in order to show how little we know as yet and how vastly much more we have to learn about this comparatively well-known microbe so often found in the upper air-tract of healthy people.

Before closing I wish to make mention of some investigations, as yet very incomplete, which I have been engaged upon during the last two months, more in the hope that others with more leisure and better opportunities will continue them, than from an expectation of adding much to our knowledge. I refer to the nasal chambers as a bacterial filter of the air passing through them.

It has been definitely proved by the investigations of Grehant (30), Paulsen (31), Aschenbrandt (32), and Bloch (33) that the nasal chambers not only are warmers and moisteners of the inspired air, but act also as a filter for dust particles. The latter observer experimented with many substances in fine powder, and came to the following conclusion, as did Grehant and Aschenbrandt:

"A certain part of all kinds of dust, even the finest, is held back; the larger part of the formed substances which float in the air do not reach the entrance of the larynx or even the choanæ; but it is impossible for the nose, even with the help of the naso-pharynx, to *completely* free the air even from the coarser kinds of dust."

Now, a bacterium, whatever its relative proportions to other divisions of matter with which we are familiar, is a ponderable substance, heavier than air, water, or any of the animal fluids. It is therefore subject to the same physical laws. It is yet an unsolved mystery how the *Bacillus tuberculosis* reaches the most frequently chosen seat of its selective action in the apices of the lungs, and how the pneumococcus usually reaches the lower lobes before a lobar pneumonia occurs. To a bacteriologist it is almost inconceivable how a microbe entering the anterior nasal meatus with the tidal air should go through the tortuous, moist passage of the nose, past the broad surface of the palate and the post-pharyngeal wall, into the larynx between the false and true vocal cords, down the long tubes of the trachea and bronchi, and finally find a lodging place on the walls of the bronchioles and air cells. The chances of its being arrested before it reaches them seem almost infinite, especially since the tidal air must stop at a comparatively high point in the respiratory channel in inspiration, and flow upward again on expiration. Neither does it seem probable that, becoming arrested at some higher point, it flows downward with the bronchial secretions, when we remember the ciliated epithelium and its function. The lymph channels have been strongly urged as an explanation; but, although our knowledge of the pulmonary lymphatics is very limited, there are many objections to this vague theory which will occur to every one. The day for theorizing has gone by. A theory nowadays should be considered as little better than confession of ignorance.

However small and insignificant an addition to our knowledge the ascertaining of the capacity of the nose as a place of arrest for microbes may be, it seemed so easy of demon-

stration that I have attempted it. The technical difficulties were many, but have been fairly overcome, though it needs a much more extended and varied research than I have yet made to draw conclusions. The task is easily stated: Ascertain the bacterial contents of the air before and after it has passed through the nose. Glass tubing, of a caliber of one eighth to one fourth of an inch and six inches long, was filled with granulated sugar for three inches and a half of its length, held in place at the bottom by a piece of rolled copper gauze, tightly fitting the tube, leaving enough space at each end for the insertion of a cotton plug. The sugar grains were of a uniform size of forty to the inch. This part of the apparatus was copied from that of Professor Sedgwick and G. R. Tucker, of Boston, to whom I am greatly obliged for a description of their method of air analysis kindly sent to the college laboratory some time before it was communicated to the Society of Arts, in whose proceedings for 1887-'88 it may be found. Their rules for sterilization of the sugar and the apparatus were also followed. For reasons which I need not stop to explain here, it was found best to vary their procedure considerably and adopt, to some extent, the method of Petri (34) with sand. After proper sterilization, the glass tubing was attached by means of stiff rubber tubing to an air-exhaust apparatus. As there was a good head of water in the laboratory, a Sprengel's air-pump was principally used, by means of which one litre of air could be drawn through the three inches and a half of sugar in from forty seconds to a minute. Usually, however, a very perfect air-exhausting apparatus may be obtained by making use of the Allen surgical pump, of the size used for veterinary purposes. About a hundred revolutions of the handle of this instrument, which can be made in forty-five seconds or a minute, will exhaust one litre of air. With either contrivance it is perfectly easy to ascertain the rate at which air will pass by means of a litre flask inverted in water.

It has been proved by Sedgwick, and I have verified the statement, that air passing at about this rate will deposit all its bacterial contents in the sugar.

With this apparatus, then, ten litres of air are drawn through the filter after the cotton plugs used during sterilization have been withdrawn. Then ten litres of air at the same time and in the same locality are drawn through the nose and also through the filter. This is accomplished as follows: The glass tubing with its load of granulated sugar, all thoroughly sterilized, is inclosed by means of a perforated rubber cork in a larger piece of glass tubing and the space between the two loosely packed with absorbent cotton. The end of the smaller tube does not reach to the end of the larger. The filter thus protected from the buccal secretions is put into the mouth and the lips are closed firmly around the outside tubing. If it is held in a horizontal position in the mouth, nothing but air can enter the filter when the suction is begun. During alternate periods of fifteen seconds each the person is directed to hold his breath, making the thoracic walls rigid. Thus practically all the air drawn through the filter must have first passed through the nasal chambers and the post-nasal space. During the fifteen seconds of respiration the air current is shut off by compressing the rubber

tube between the filter and the suction apparatus; consequently the time consumed in the examination of the nasal air is twice that consumed in the control examination. The plan adopted by Aschenbrandt and others of drawing the

precautions taken in sterilizing, controlling, and guarding against aerial contaminations, which belong to the technique of careful bacterial analysis.

The colonies developed after several days in the two sets

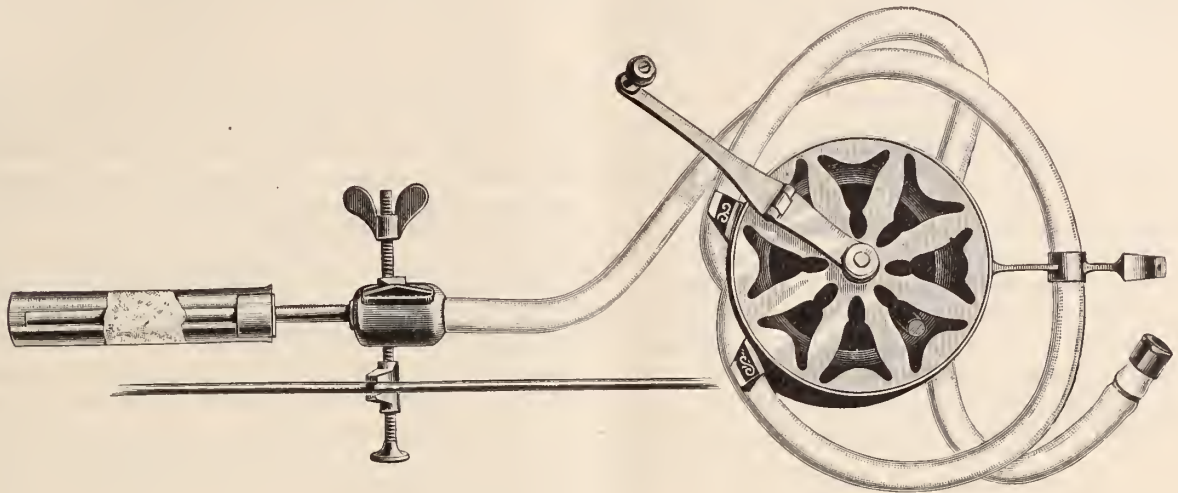


FIG. 1.

air up one nostril and down the other before examination, besides other faults, permits the entrance of mucus into the air filter, which it is impossible to protect from contact with the walls of the nasal chambers.

After the ten litres of air are drawn through in each case the sugar is dampened and partly dissolved with a few drops of carefully sterilized water to facilitate its removal from the glass tubing. By means of a sterilized stiff brass rod the wire gauze is pushed along the tubing, forcing the wet and partly dissolved sugar out into shallow glass dishes, where it is thoroughly dissolved and mixed with ten-per-cent. nutrient gelatin. The glass tubing is filled with gelatin and stopped at both ends with cotton. The gelatin in the dishes is allowed to solidify slowly so as to insure the complete dissolving of the sugar. It was found that very few, in many cases no, colonies developed in the glass tub-

of dishes were counted and compared. As I said before, too few examinations were made to arrive at hard and fast conclusions. I only experimented on my own nose, and have succeeded only recently in getting results free from errors of technique. Speaking in a general way, the nasal chambers in my own case seem capable of filtering out about three fourths to four fifths of the bacterial contents of the air passing at the rate of one litre a minute. The photographs of an examination made during the presence of a considerable quantity of mold in the air illustrate this fairly well. This particular experiment was photographed because the white molds show the difference in a more striking manner than bacterial colonies, but the same proportion seems to hold good with them, as, for instance, in an examination made on April 25th of this year.

Ten litres of laboratory air contained four molds and a hundred and twenty-five bacteria. Ten litres of laboratory air, after passing through the nose, contained one mold and twenty-four bacteria. Of course noses must differ in this respect as much as in other ways, and the rapidity of the current we know makes a difference in the number of both molds and bacteria deposited in Hesse's apparatus. Counting 500 c. c. as the tidal air with each inspiration, we have about nine litres a minute passing through the nasal chambers in normal respiration. In the experiments just mentioned the rate was only a little over one litre a minute. In

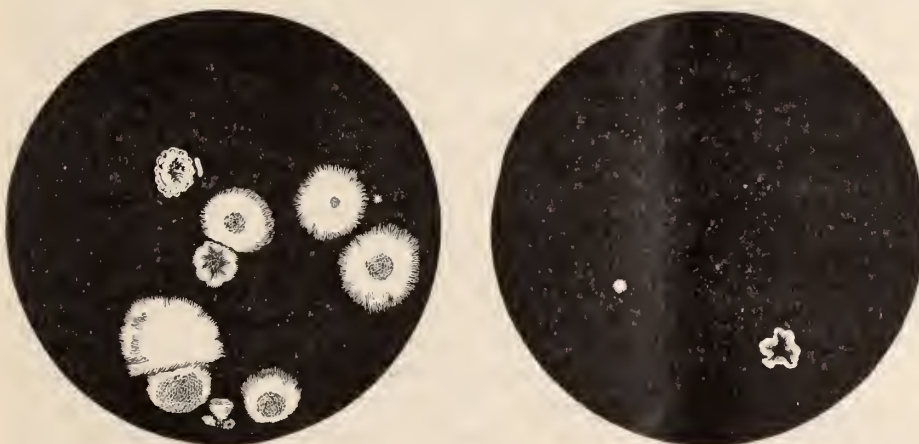


FIG. 2.

Bacterial contents of ten litres of laboratory air.

Bacterial contents of ten litres of laboratory air after passing through the nose and the postnasal space.

ing, so completely did the sugar carry along its bacterial contents with it when pushed out. I have described the process hurriedly and omitted descriptions of the routine

spite, then, of the apparently well-adapted arrangement of the nasal chambers for a bacterial filter, even at this rate a really large number of bacterial forms are carried at least into

the larynx. It is to be hoped that further and more complete and reliable investigations will confirm or refute this somewhat premature assertion. Unless we are to throw aside the very numerous and careful observations made by bacteriologists in pulmonary diseases as useless, it is surely of the greatest importance that we should know something of the mode of ingress of microbes into the deeper pulmonary tracts.

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73 REMSEN STREET.

THE CONSTITUTIONAL TREATMENT OF CARIES AND NECROSIS.

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THE surgical aspects of these distinct maladies have been the subject of discussion by surgical writers from the earli-

est times. Good surgical treatment implies constitutional treatment as well as operative methods. My purpose in submitting this paper is not so much to show any particular method of operative interference as to indicate the great value of judiciously selected constitutional treatment in these particular diseases.

A glance at the minute anatomy of bone, and a consideration of the conditions under which the repair of damage takes place, shows that bone, like the softer tissues of the body, requires good food and pure air, essential factors in the production of good blood, for its normal sustenance. The relation of the digestive process to the maintenance of vigorous and nutritious bodily fluids is apparent to those most inexperienced in the management of disease. Any derangement or impairment of the digestive process, or ferments, produces a consequent impairment of blood supply delivered to the bones. The days and nights of pain incident to the usual course of caries or necrosis disorganize the digestive functions. The shock and fear, and chloroform narcosis incident to the operative procedures, frequently necessitated by these diseases, also undermine the digestive functions.

Children are the most frequent sufferers by these diseases. The impaired digestive functions in children yield more readily to properly selected treatment than is the case with adults. The conversion of starch into sugar by the digestive ferments is more frequently impaired in children suffering from caries and necrosis than is the conversion of albuminoids into assimilable substances. The use of artificial diastase is, therefore, indicated on the best of physiological grounds. Hip-joint disease, caries of the spine, chronic inflammation of the knee, and caries of the long bones are for some reason constantly accompanied by mal-assimilation and indigestion of the starches. When such cases proceed to a good, sound recovery it is through a thorough restoration of this particular digestive power, or a compensatory increase of the digestive power for hydrocarbons. In no case of hip-joint disease, were the operative methods ever so carefully or skillfully performed, has there been a repair of lesions until the digestive ferments have handled the starches perfectly. The same fact applies to the other varieties of bone diseases above mentioned.

My experience in the treatment of hip-joint and spinal cases, necrosis and caries of the various bones, embraces large numbers of cases, probably because my professional brethren have lacked the patience and perseverance and rigid attention to the digestive power essential to the cure of these long-time maladies. The Trommer extract of malt has been of great service in enabling me to bring numbers of these cases to a happy termination, and in a space of time of shorter duration than is accomplished by the use of cod-liver oil or hypophosphites.

From my case-book I quote the following cases:

CASE I.—W. S., aged eight years; parents, farmers; residence, Lenawee County, Mich. Double hip-joint disease; sinuses in the right gluteal fold over the right trochanter near the base of the left Scarpa's triangle, on the inner aspect of the left thigh; could drink milk, but ate no bread or potatoes; was ordered teaspoonful of Trommer's extract of malt every three

hours; was put on a diet of corn meal, bread, potatoes, milk, and eggs. Sinuses were laid open, drainage effected by maintaining free openings with oakum tent; plaster of Paris applied to the thighs and pelvis to limit mobility of hip joints. Sinuses closed at the end of five months; ankylosis of left hip; limited motion of right. Came under treatment in May, 1877; has had no return of the disease to date.

CASE II.—Miss F., aged sixteen years. Consulted me on account of a constant, dull, uneasy feeling in the epigastric region; emaciation and pallor; poor appetite; movements awkward; pain in riding; could walk easier than sit; examination of the spine revealed small fluctuating tumor about two inches to the left of the spinous processes, between the eighth and ninth ribs.

Diagnosis.—Caries of the dorsal vertebra, with abscess pointing between eighth and ninth ribs. Put upon the extract of malt, tablespoonful every four hours. Abscess was opened by incision and double drainage-tube inserted to the depth of four inches. Abscess cavity washed out daily with one-per-cent. solution of carbolic acid. Profuse discharge of pus for two weeks; plaster-of-Paris jacket applied; discharge of pus was succeeded by a thin serous fluid; pain disappeared from epigastrium; progressing favorably for two months. Passed into the hands of another practitioner; plaster of Paris removed; drainage-tube withdrawn; sinus closed. So-called blood medicines administered; pain returned in a couple of weeks; sinus reopened; angular curvature developed suddenly. Came into my hands again. Marked angular curvature, gibbosity; abdomen distended and lower part compressed, narrowed in upper portion; severe epigastric pains; tongue white, pasty. Sleepless, feverish. Reapplied plaster of Paris; enlarged sinns and introduced drainage-tube; washed out cavities as before and readministered Trommer's extract of malt, tablespoonful doses every four hours for a year and a half. Drainage-tube came away spontaneously; sinus is healed; plaster was reapplied four times; patient at date has no return. Has married and is the mother of one child, healthy.

CASE III.—J. R., aged thirteen years; Monroe County, Mich.; large, raw-boned boy. Had been sick four months; left thigh flexed upon the abdomen; toe inverted; fluctuation in obliterated left gluteal fold; pain in the knee; sleepless; no appetite; temperature 101°. Abscess opened and drainage-tube inserted. Plaster of Paris applied to the leg, thigh, and pelvis; limb and thigh extended under chloroform, one inch added to the right sole; used crutch. Took extract of malt in tablespoonful doses every four hours, and six months after coming under treatment all sinuses closed; injury repaired by ankylosis.

CASE IV.—W. R., aged fourteen; residence, Fulton County, Ohio; German parentage; was robust farmer's lad until attacked two months before I saw him with phlegmonous erysipelas of the right leg and left thigh and knee; sinus had opened on the outer aspect of the right leg and behind the external malleolus. Probe passed along the whole length of the right fibula gave the rough feeling indicative of necrosis; left thigh and knee joint swollen; fluctuation in the left ham; fever, chills, hectic; left leg laid open by incision along the course of the fibula, and whole of that bone removed from the malleolus upward. Abscess in the left ham opened by free incision; treated by drainage by means of tent. Knee, left leg, and thigh put in plaster to immobilize left knee. Took Trommer's extract of malt, tablespoonful every three hours. Wound in right leg healed promptly; fever disappeared; abscess in left thigh healed, and knee joint healed by ankylosis in two months after treatment began.

CASE V.—German boy, aged nine years; residence, Lenawee County, Mich.; good general health; was lost in woods over night while searching for cattle; fall of snow same night. Boots were ragged; feet suffered terribly from frost. Came under my

treatment three weeks after the exposure; had been sick ever since; fever and chills; sinus had opened about the left heel; foot and ankle swollen and œdematous; probe showed the os calcis carious and necrosed. Incision across the heel below the insertion of the tendo Achillis; os calcis removed with forceps; wound washed daily with weak carbolic-acid solution. Took teaspoonful of extract of malt every three hours. Cured in four months, but foot not of much use.

These cases occurred so long ago that plenty of time has elapsed for return of the disease if the cures had not been perfect. They are sufficient to show the value of the treatment employed. Other cases have occurred since and have recovered. Many other cases are still under treatment and will recover.

I attribute the good results in the cases mentioned fully as much to the artificial digestion of starchy foods craved by these patients as to the operative methods employed, and believe that in many instances the cases would have progressed to the same happy ending had the rigid attention to the diet only been employed, but more time would have been necessary.

Correspondence.

LETTER FROM PARIS.

M. Budin on Hæmorrhoids during Pregnancy.—The Use of Chloroform in Obstetrics.—The Employment of Drainage in Large Surgical Wounds.—Caffeine as a Tonic.

PARIS, May 30, 1889.

M. BUDIN has just published a handsome volume of his clinical lectures on obstetrics* that met with such success when the author was in charge of the *Clinique d'accouchements*. The opening lecture details the new method of teaching obstetrics, which was devised and first put in force by Professor Budin. This system I referred to at the time, and I can now say that it has met with wonderful success. It is difficult to pick out the most interesting parts of a work that has so much important matter in it, but the lecture on hæmorrhoids during pregnancy, and the one on the use of chloroform in obstetrics, present practical points that will be of interest to the general practitioner. As to the first, M. Budin showed a case of a woman who, up to that confinement, had had no varicose veins or hæmorrhoids, but on this occasion a large hæmorrhoidal tumor persisted after the expulsion of the fœtus. The next day the patient was very ill with pain, that had prevented her sleeping all the night before, and, on examination, there was seen a mass of piles as large as a small orange. A pouade of vaseline and cocaine (one to twenty) was ordered to be applied, and a purgative (sulphate of sodium) was given, but the next day the patient was as bad as ever. Reduction was then made under the influence of a few inhalations of chloroform; all pain seemed to leave the patient at once, and, the sphincter ceasing to contract, the tumor disappeared very rapidly under slight pressure. Afterward a cotton tampon, covered with vaseline and iodoform, was applied, and the case ended satisfactorily. The important fact brought out by this observation is that there is a complete analgesia in painful piles under extremely small doses of chloroform. The patient was conscious all the time, and felt no pain during the reduction. Hæmorrhoids

* "Leçons de clinique obstétricale," par M. Budin, professeur agrégé à la Faculté de médecine de Paris.

have been considered frequent during pregnancy by some authors, while others deny their presence; it is probable that this divergence of opinion arises from the class of patients under observation. M. Budin found only eighteen cases in some three hundred women at the Maternity, but in private practice the number is much greater, owing, no doubt, to the fact that the hygienic conditions are different. The better class of people follow a sedentary course of life during pregnancy, at least in the last months, and they also partake of a rich form of alimentation, so that there is a predisposition in their cases that does not exist in the laboring classes who are confined in the hospitals. The direct cause of hæmorrhoids exists in the increase of volume of the uterus, which acts by compression on the rectal veins; besides this, there is a vascular tension in the organs of the pelvic region which is much increased during pregnancy, and the ano-rectal veins permit of easy dilatation through this extra fluxion.

Constipation then is also usual, and the consequent distension of the rectal ampulla irritates the mucous membrane and causes increased effort during defecation. As to the symptoms and complications, they are the same as in any hæmorrhoidal cases, and the diagnosis of vegetations is not difficult, owing to the bright-red color of the latter. It is essential to remember that hæmorrhage may occur from internal piles during pregnancy, and not to mistake it for some other and more serious bleeding. M. Budin gives Tarnier's method* of turning the rectal mucous membrane inside out in such cases, and it is the most certain way of avoiding a mistake in diagnosis. It is practiced as follows: The index finger is passed into the vagina along the posterior wall, and when it has gone beyond the anal sphincter it is turned forward, like a hook, and continuous pressure is made from above downward on the rectal membrane until it is turned inside out and appears at the anus little by little; then, if there is an internal pile, a smaller or larger black tumor will be seen on the membrane. (It need hardly be said that the finger nail must be cut close before doing this operation.) As to treatment, M. Budin says that one should not fear to purge pregnant women and to advise moderate exercise and baths; but there is a difference of opinion as to the kind of evacuant to be used. Tarnier and others think well of castor-oil, but Fordyce Barker accuses it of causing irritation of the rectum and congestion of the pelvic organs. M. Budin finds that sulphate of sodium (in three- to six-drachm doses) acts very well. Leeches are not applied now to hæmorrhoids, as it is feared that they may open the door to infection. All such patients should use lotions of water for cleanliness, as the use of paper after defecation may bring about hæmorrhage by rubbing too hard and irritating the piles. This small hygienic point is well known to the natives of India, who go out into the fields and proceed after the directions of that great hygienist Moses, who instructed his people to go into the fields, dig a hole, and after covering it over, to wash the part. The Indian natives can be seen to this day carrying a small bowl of water with them on such occasions.

In regard to the use of chloroform in obstetrics, M. Budin gives numerous cases to prove that labor pain can be lessened by quite small doses of chloroform in most cases. It is given here in the manner called "*Queen's chloroforming*"; that is to say, just enough to dull sensibility. In a few cases, however, it is necessary to proceed to complete anæsthesia, which does not prevent labor going on to a successful issue. The principal indication for the use of chloroform in labor is found in extreme pain. Often it is only during the period of expulsion that it is needed, but when the pains are intense during dilatation it

may also be used. Rigidity of the os uteri is an important indication. There is an extraordinary degree of tolerance in parturient women for chloroform, so that the contra-indications are extremely few.

The question of suppression of drainage in large surgical wounds, and that of washing out the same, has been before the *Société de chirurgie* for several weeks, and at first thought the idea of giving up drainage seems a backward step. M. Nicaise said he had remarked that the washing out of large wounds favored exudation and retarded cicatrization, so that he had reduced the number of washings and contented himself with drying out the wound and putting in a drain which he could take out on the second day. He would not say as yet suppress the drains, but reduce the washing out and thus do away with the need of much draining. M. Kirmisson seemed to think that the use of drains had been abused, but that there should be defined and regular rules laid down for their use. Whenever the tissues could be brought in close contact by the dressings used there was no need of putting in a drain, but in vast wounds covering a great surface they were needed. M. Terrier thought that to drain or not to drain depended on two important points. The first was as to whether the tissues cut were healthy or not; if not, then drains must be used, and where there was considerable effusion to be feared, they should be used. M. Jules Bœckel (of Strassburg) said that he had first of all used a drain one day only, and then had given them up altogether, and at the present moment he *considered them as a surgical error*. He then gave details of thirty-three grave successful surgical operations in which he had not used drainage. These operations had been castrations, amputations of the limbs and of the cancerous breast, resection of the knee, etc. M. Bœckel related the details of some extensive operations for secondary cancer where he had had to remove the axillary ganglions and do an osteotomy of the clavicle, and yet the wounds had healed without drains and with his single dressing in a week. He depended on perfect antiseptic dressings and careful washing of instruments, with drying the wounds with iodoform gauze, and a small number of ligatures. The dressing was made to act by compression.

Dr. Henri Huchard has some good observations to present on the use of caffeine as a tonic or excitant in adynamic states. He considers it much superior to ether, which may be more exciting but is much less tonic in its action. The diuretic action of caffeine is now admitted by everybody, but its cardiac action is still contested. One point in the use of caffeine in adynamic states is that it can be given in considerable quantities without danger. In one case of extreme weakness (with from forty to fifty stools a day) as many as ninety-five hypodermatic injections of caffeine were given in a month. Dr. Huchard uses these injections with great freedom in typhoid fever at the Bichat Hospital, as well as in cases of serous pneumonia, and reports a number of cures in very grave cases. In experiments that M. Huchard made on animals, he found that the drug acted on the nervous system, and Semmola (of Naples) states that its principal action is on the medulla oblongata. In any case two important facts are evolved from Huchard's experiments: First, that caffeine has a remarkable efficacy in large hypodermatic injections in all adynamic cases. Secondly, it can be given in large doses without danger. M. Huchard employs the following formulas: \mathcal{R} Caffeine, 2 grammes; benzoate of sodium, 3 grammes; and distilled water, 6 grammes. The solution must be made while hot. Each syringeful contains 20 centigrammes of caffeine. Sig.: Inject 6 to 10 syringe-fuls *per diem*. The second formula is: Caffeine, 4 grammes; salicylate of sodium, 3 grammes; distilled water, 5 grammes. Here the syringe contains 40 centigrammes of caffeine, and from four to five injections are given each day.

* Well known in this country as Storer's method.—EDITOR.

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THE FUNCTION OF THE RENAL GLOMERULI.

In his "Lectures on Important Symptoms," in treating of albuminuria, Professor Grainger Stewart considers the glomeruli of the kidney as mere filters, leaving out of consideration the possibility that their epithelium may be of a secretory nature. In a recent thesis on "The Functions of the Glomeruli of the Kidneys; a Contribution to the Study of Albuminuria," Mr. J. G. Adami, demonstrator of pathology in the University of Cambridge, discusses the various theories of renal activity at some length, especially with reference to the part played by the glomeruli.

The mechanical theory, based upon the researches of Ludwig and his school, broke down when Bowman, by injecting sulphindigotate of sodium, demonstrated the passage of substances through the cells of the tubuli contorti, and showed that these cells, instead of absorbing, excreted into the lumen of the tubules. Notwithstanding this, there are still able men that hold, with Professor Grainger Stewart, that the general blood pressure is the determining factor in the production of the fluid part of the urine. Adami shows, however ("Practitioner," April, 1889), that blood pressure plays a secondary rôle. This becomes evident, says Adami, when we study the cases in which, the general arterial pressure remaining constant, the outflow through the renal veins is obstructed. Ludwig pointed out, a quarter of a century ago, that narrowing or temporary closure of the renal veins was accompanied by a rapid slowing or stoppage of the flow of urine, notwithstanding the undiminished general arterial pressure, which is accompanied by increased pressure in the glomerular loops. Ludwig's explanation of this, that the dilated capillaries so pressed upon the tubules as to constrict them, close their lumen, and prevent any passage through them, was combated by Heidenhain, who propounded the theory that it was the rate of flow through the glomeruli, rather than the blood pressure, that governed the passage of water through the kidney. This theory, however, does not imply that the blood pressure is not a factor in the process, and the recent work of Paneth has confirmed and established Heidenhain's contention. And Munk cites experiments to show that the rate of blood flow, and not simply the blood pressure, determines the glomerular excretion, though he did not in his experiments entirely eliminate the factor of blood pressure.

It is now generally conceded by physiologists that it is the velocity of the flow through the glomeruli, and not solely the blood pressure in them, that governs the excretion of the fluid of the urine. This being admitted, the question now arises: What is the nature of this excretion? Is it simply a process of

filtration, or is it more of a process of secretion? These questions are of great importance in the interpretation of albuminuria. Both Heidenhain and Cohnheim have insisted upon the secretory view, but Senator, Runeberg, and Grainger Stewart hold to the theory that the glomeruli act simply by transudation. Of course the composition of a secretion entirely precludes the idea that it is a filtrate, nor can a secretion be explained by the laws of filtration; its quality is determined by the specific characteristics of the gland cells. Given a membrane that, while the blood pressure remains constant, at one time permits and at another time prevents the passage of fluid from the blood, such membrane must have specific properties, too complex to be accounted for by the laws of a simple form of physical action. Senator's theory is that the fluid portion of the urine is derived in part from the glomeruli by transudation, and in part from the epithelium; and he considers that the cells of the tubules, like other cells, in secreting any substance always excrete with it a certain amount of watery fluid. Grainger Stewart thinks that we may hold with certainty that the water is mainly eliminated by filtration through the Malpighian bodies; but the urea and other urinary solids are not discharged by filtration, but by a secretive process performed by the cells of the tubules; and that along with this secretion, as in the case of other glands, a certain amount of watery fluid passes.

But the supporters of the filtration theory have a great obstacle to contend with; they must explain how it is that a filtrate from the albumin-containing blood serum is normally free, or almost entirely free, from albumin. If the capillary loops of the glomeruli with their epithelial covering form but a passive filtering membrane, then the loops must obey the same law as, and correspond in general action to, other animal membranes. All other transudations contain albumin, and fresh animal membranes, when used as filters, always allow the passage of albumin. Why does not the normal glomerular membrane permit the passage of albumin always in the normal state? Grainger Stewart himself admits that, even after considerable concentration, albumin is not to be discovered in what he rightly terms normal urine. It may be said that the cells of the tubules reabsorb the albumin transuded through the glomeruli. But Senator has shown that the cells of the tubuli, so far from absorbing, may actually excrete albumin under certain conditions. Grainger Stewart inclines to the opinion that "the blood pressure in the capillary loops, and the walls of these vessels with their epithelial coverings, are so balanced as to permit of the transudation of fluid, and yet completely to prevent the passage of albumin . . . and at all events we may hold with certainty that water is mainly eliminated by filtration through these structures."

There is certainly a definite blood pressure in the glomerular loops. But a high pressure does not prevent the passage of albumin through simple animal membranes. With a pressure below that which in the dog and in man is accompanied by a total cessation of urinary excretion, albumin continues to transude through membranes outside the body. Where, then, asks

Adami, occurs the balance of which Grainger Stewart speaks? If we say that such a comparison between dead and living membranes is unjust, we must acknowledge that the living membrane has some factor that the dead one has not; that the glomerular walls have specific properties and actions unaccounted for by the laws of filtration and transudation; in other words, we are on the verge of asserting that the glomerular epithelium may exercise a selective function; which is the position in which Stewart finds himself.

There are other grave objections to the filtration hypothesis. Runeberg has shown that, at a mean pressure of 73 mm. of mercury, as much as 95 per cent. of the albumin in solution may pass through an animal membrane; even at a pressure of 7.3 mm. there is still a high percentage. At the ordinary blood pressure of 120 to 150 mm. of mercury there should be no great diminution in the amount of albumin filtered. What is the fact? The pieric-acid test shows that in the normal state there is less than 0.00015 per cent. of albumin passed! According to Hammersten, normal blood serum contains 4.516 parts of serum albumin; so that, even if normal urine contained 0.2 instead of less than 0.00015 per cent. of albumin, the theory of urinary filtration is still at fault, even if we admit that the greater portion of the urinary fluid is excreted through the tubules. Again, says Adami, we know that blood serum contains large amounts of two proteids—serum albumin and serum globulin. Both transude through fresh animal membranes, and, serum globulin being the more diffusible of the two, it should appear in the urine in cases of albuminuria. The two proteids should be present together in the urine, and in fairly constant proportions. But such is by no means the case. The theory that glomerular activity is of the nature of simple filtration or transudation fails absolutely. We must consider the glomeruli as possessing functions of a selective or secretory nature, permitting the passage of some substances and preventing the passage of others. In favor of this view there are the following facts: The glomeruli are not solely blood capillaries; each capillary loop is covered with a fine membrane with a single layer of epithelium the cells of which must be considered as having actively vital properties, one of which is contractility, as shown by Hedinger. The histology of the tubular epithelium, of which the glomerular epithelium is but a part or a continuation, shows that it is of a selective and secretory nature. Experimental physiology shows the same thing. The investigations of Afanassiew and Hunter in regard to hæmoglobinuria confirm this view. Adami does not allege for the glomerular epithelium any synthetic power; his argument is that it has a selective power, active and not passive, producing a secretion and not a transudation.

What, then, are the factors that determine the appearance of albuminuria? It is admitted that albumin, when it appears in the urine, passes through the glomeruli. Senator's experiments seem to prove that some of the albumin has its origin in the uriniferous tubules, "and it is not improbable that in parenchymatous nephritis and in venous engorgement of the kidney a certain, and it may be a large, proportion of the albumin

originates from the affected cells of the tubuli." There is no denying that infinitesimal amounts of albumin may be present in normal urine. The absence of ascertainable quantities is probably due to the healthy state of the tubular cells and to the normal functional activity of the glomerular epithelium, which prevents the passage of albumin and globulin, provided they are not in the blood in excessive quantities. Aside from this excess, the amount of albumin passed is mainly determined by the state of the glomerular epithelium, which in a condition of lowered vitality permits the egress of a fluid more of the nature of a transudation; the lower the vitality of the epithelium, the more is the fluid passed of the nature of a filtration, the epithelium having to a certain extent lost its selective and controlling power. In this way the proteids of the blood serum sink to a percentage below the normal. Reasoning on these lines, we can, says Adami, explain the graver forms of Bright's disease, and also many cases of transient albuminuria. The factors that, singly or in combination, temporarily lessen the rate of blood flow through the glomeruli, and thus cause imperfect nutrition of their delicate walls, or directly lead to imperfect nutrition and lowered vitality, will probably explain most cases of transient albuminuria, febrile, toxic, puerperal, and functional.

MINOR PARAGRAPHS.

THE EXTERMINATION OF HYDROPHOBIA IN ENGLAND.

IN "Nature" for July 4th we find an account of a meeting at the Mansion House, London, held July 1st, to discuss the prevention of hydrophobia. The increase of rabies, on the one hand, and, on the other, the efforts of certain societies to resist the introduction of the Pasteurian methods into England, have caused this rally of the friends of Pasteur. Two letters, among others, were read at the meeting, written by Professor Huxley and M. Pasteur. Huxley's letter characterizes very pungently the opposition of the anti-vivisectionists as coming from a class of people "who prefer that men should suffer rather than rabbits and dogs." His opinion of the value of M. Pasteur's work is positive. He says: "Medicine, surgery, and hygiene have all been powerfully affected by the labors of Pasteur, which have culminated in his method of treating hydrophobic victims." The letter of M. Pasteur, dated as late as June 27th, was read by Sir Henry Roseoe, M. P. It is interesting as giving his latest figures, amounting to nearly seven thousand patients treated. The number, to June 1st, was 6,950, and the deaths were 71. In short, the general mortality has been 1 per cent., but, if an exception is made of the cases in which hydrophobia had "burst out" before the curative process could be complete, the general mortality is reduced to 0.68 per cent. M. Pasteur assures the English people that they can "stamp out" rabies in their country if the proper measures, which are entirely feasible, are carried out, and he cites to them the fact that Norway, Sweden, and Australia are countries where the disease is not known.

THE ANTIPARASITIC TREATMENT OF CHOLERA.

HERR LOEWENTHAL has been at work at the Cornil laboratory in Paris, studying the relations of salol to the bacilli of cholera. He is convinced that he has found the specific antiparasitic for that disease, and he has so far convinced the French Govern-

ment that they have issued to him a remarkable commission to enable him to pursue, with dignity and independence, his inquiries at Touquin, where the disease exists. His commission gives him high rank in the regular French service, without exacting any alienation of his allegiance to the country of his birth. The necessary funds have been appropriated by the Government to pay the expenses of these researches. Herr Loewenthal regards salol as perfectly harmless—that is, as much as five drachms may be taken in a day. In experimenting upon himself, he has taken as much as seventy-five grains night and morning. The morning dose, taken fasting, caused a passing vertigo only, while the evening dose produced no appreciable symptoms. He proposes to use thirty grains three times a day as a prophylactic in the case of those exposed. For a patient showing the first symptoms of cholera he would begin, according to an abstract in the "Medical News," with sixty grains for the first dose, and then follow with fifteen grains hourly.

FOREIGN STUDENTS AT VIENNA.

THE "Progrès médical" states that a society has been formed in Vienna to provide hospital accommodations for the students, medical and others, who fall ill. In May last, one sixth of the medical students at the University were foreigners, and one thirtieth were Americans; or, more exactly, of 3,185 of all nations, 530 were foreigners and 105 cisatlantic students. The "Vienna Weekly News," printed in English, for the benefit of the Americans and others conversant with that tongue, has opened an inquiry office, near the General Hospital, for the free use of English-speaking students seeking information as to lodgings, lectures, and other matters.

FAITHFUL SERVICES RECOGNIZED.

DR. JAMES F. HARTIGAN, of Washington, has been appointed to an important Austrian consulate, and it is reported that the office has been given to him, in preference to many others, on account of an impairment of his health incurred in governmental service. While the fever prevailed in Florida, he undertook some special medical duty in that State for one of the departments at Washington, in the course of which he became ill and has been disqualified for active practice ever since. It is pleasing to make mention of this, both as a preferment won by faithful medical work and as an unusual and honorable act on the part of the authorities.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 23, 1889:

DISEASES.	Week ending July 16.		Week ending July 23.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	23	0	24	6
Scarlet fever.....	50	9	41	11
Cerebro-spinal meningitis....	1	1	3	3
Measles.....	55	3	67	5
Diphtheria.....	76	26	98	23

The White Mountains Medical Society will hold its semi-annual meeting at Hanover, N. H., on the 1st and 2d of August, in conjunction with the Connecticut River Valley Medical Society and the White River Medical Society. Dr. G. W. McGregor will preside, and members of the faculty of Dartmouth Medical College will take part in the proceedings. The subjects announced are as follows: "The Radical Cure of

Hernia," by Dr. Conner; "Acute Glaucoma," by Dr. Webster; "Modern Surgical Methods of treating Obstructive Diseases of the Nose and Naso-pharynx," by Dr. Hooper; "The Symptoms and Treatment of Fibroids of the Uterus," by Dr. Mundé; "Antiseptic Obstetrics," by Dr. Parish; "The Mechanism of Insanity," by Dr. Cowles; and "Sulphonal," by Dr. Field. Clinics will be held by Dr. Conner, Dr. Webster, and Dr. Hooper.

The College of Physicians and Surgeons.—The new catalogue, which has just appeared, shows that the number of students in attendance last year was 701, a smaller number than usual. This decrease was due, very naturally, to the more rigid requirements of the new curriculum. Dr. James W. McLane is publicly announced as president of the college, but still retains the professorship of obstetrics. Dr. Richard J. Hall, professor of anatomy, has resigned and his place has been given to Dr. George S. Huntington, for some years demonstrator of anatomy. Dr. Charles T. Parker is made assistant demonstrator of anatomy. The incoming class already numbers 220, a hundred more than entered last year.

Recent Deaths.—Dr. Alvin Ava Austin, of the navy, has died at New London, Conn., after an illness of two weeks. He was a native of Missouri, studied medicine at the Jefferson College, Philadelphia, and graduated there in 1873. In 1874 he was commissioned assistant surgeon, and five years later was promoted one grade higher. He was ordered to the New London station in 1879, and of late had been on duty on the steamer Gedney in the Coast Survey. His home was in Philadelphia.

Dr. Harris H. Beecher, of Norwich, N. Y., died on July 14th, at the age of sixty-nine years. He was a native of Coventry, N. Y., and a graduate, in 1847, from the Castleton Medical College. He was a member and officer of the Chenango County society. He was assistant surgeon, and afterward historian, of the 104th Regiment. During his service in the war he received a disabling injury. He was a platform speaker of more than local repute, and was a member of the Assembly in 1874.

Dr. Edwin De Witt Nooney, of Stratford, Conn., died on the 18th inst. He was forty years of age. He was an alumnus of the College of Physicians and Surgeons, in the class of 1871. He was medical examiner for his district.

The "Medical and Surgical College of the State of New Jersey."—An officer of this institution, referring to our article entitled "The Transplantation of a Medical Fraud," published in the issue for July 6th, has written us a letter in which he states that his institution has no connection with the late "United States Medical College" of New York, and never had any; and that it was chartered by the New Jersey Legislature in 1870.

The late Dr. Stephen Wickes.—At a special meeting of the staff of the Orange Memorial Hospital, held on Tuesday, July 9, 1889, all the members being present, the following action was taken upon the death of Dr. Stephen Wickes:

Whereas, In His infinite wisdom, our Heavenly Father has taken to himself our beloved colleague, Dr. Stephen Wickes,

Resolved, That this staff has lost a faithful co-laborer. He was zealous and devoted to all the duties pertaining to his office as a medical attendant of this institution. He was an earnest Christian gentleman, whose character and disposition were molded by Christian grace. He was modest, retiring and considerate, charitable, and always ready to give of his time and strength to those in need. He was beloved by those to whom he ministered, and by those with whom he was associated in relieving the sufferings of the sick. Words do not truly express the veneration, respect, and esteem which were accorded to our

deceased friend and professional brother by all who knew him, within medical circles and by the general community. His literary labors have resulted in the production of much valuable matter, especially of a historical nature, that will serve as a memorial of a useful life. To his family we offer our heartfelt sympathy in their great sorrow, but they still will share with us a joy and comfort that Dr. Wickes was ripe in years, rich in honors, and sure of reward for a helpful and blameless life.

[Signed.] T. R. CHAMBERS, }
T. W. HARVEY, } Committee.
GEORGE BAYLES, }

The American Rhinological Association will hold its seventh annual meeting in Chicago, on the 28th, 29th, and 30th of August. A committee will report on the relation of nasal inflammations to affections of the mind.

Change of Address.—Dr. Horace T. Hanks, to No. 766 Madison Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 14 to July 20, 1889:*

BRECHEMIN, LOUIS, Captain and Assistant Surgeon. By Par. 1, S. O. 159, A. G. O., July 12, 1889, ordered to Illinois National Guard, near Springfield, Illinois, during remaining portion of encampment.

BALL, R. R., Lieutenant and Assistant Surgeon, is granted leave of absence for fifteen days. Par. 3, S. O. 87, Department of the Missouri, July 9, 1889.

BURTON, H. G., Captain and Assistant Surgeon. By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted in S. O. 22, January 26, 1889, from this office, is further extended two months on account of sickness. Par. 1, S. O. 162, A. G. O., July 16, 1889.

INES, F. J., Assistant Surgeon, now at Fort Lyon, California, will proceed to camp near Oklahoma City, Indian Territory, and report to the commanding officer for duty, relieving Captain W. C. Gorgas, Assistant Surgeon, who, when so relieved, is authorized to avail himself of the leave of absence granted him in Par. 2, S. O. 84, c. s., Department of the Missouri. Par. 1, S. O. 87, Department of the Missouri, July 9, 1889.

Society Meetings for the Coming Week:

WEDNESDAY, July 29th: Gloucester, N. J., County Medical Society (quarterly); Middlesex, Mass., North District Medical Society (Lowell).

Letters to the Editor.

DR. TRACY'S MORTALITY STATISTICS.

NEW YORK, July 23, 1889.

To the Editor of the New York Medical Journal:

SIR: I have waited, before answering your somewhat off-hand criticism of my report on death-rates for 1888, until I should be able to send you a pamphlet copy of the report, which I inclose. In his airy condemnation of the tables as worthless, your critic shows that he has not read the text of the report, and does not know what the figures purport to represent. There are four ways in which they may be incorrect:

1. The census of the tenements may have been incorrectly taken. But the police officers inspect each tenement from top

to bottom twice a year. During the last inspection they also took the census. As each man was obliged to visit only five or six houses a day, to complete his district within the given time, the added duty was not onerous, and there is no reason to suppose that the figures obtained were not as accurate as those taken by the enumerators of the United States census. Moreover, in several cases, taken at random, other officers or clerks were sent to verify the census of houses, and the second report practically tallied with the first. When it did not there was found to be a good reason for it—a family had moved out or in, or some one had died or been born, or the like. In this way the population of 32,390 tenements was obtained, by street and number, comprising 1,093,701 persons. Can your critic suggest any way of getting a more accurate census?

2. The number of deaths given may not be correct. We have reason to believe that all the deaths in the city are reported at this office. No dead body, too large to be carried in a cigar-box, can be taken out of the city, or buried in any cemetery within it, without our knowledge. Each death was copied on a small card, giving the street and number, cause of death, age, date of death, and the number of the doctor's certificate. These cards are filed alphabetically and numerically, so that the deaths during the year in any house in the city can be ascertained within a few seconds. Deaths in institutions, when the previous residence of the patient was given on the certificate, were referred to such residence in the card catalogue. Can your critic suggest any more accurate method of determining the number of deaths in each house?

3. The total population of the city may be underestimated. I have made the estimate in the only way I know of that promises to give a result which is not wholly guesswork, but has a foundation to start from. The method is stated in the report. Can your critic suggest one which is likely to give a more accurate result? If he can, I should be glad to adopt it.

4. The figures from which the tables are made may have been added incorrectly. I used in all computations a mechanical adder of unvarying accuracy, and the results all correspond.

The work of compilation was enormous. Every house was taken singly, the deaths and population combined carefully by myself alone, in lack of sufficient clerical assistance, and it took me nearly six months to do it. Both the census, house by house, and the deaths, each one certified, are in such shape that any skeptic who chooses to do so can verify them for himself in the case of any particular house or houses. Under these circumstances I must plead, in my own justification, that any critic, instead of dismissing the tables with a wave of the hand, ought to show what precautions have been neglected in their preparation.

The figures quoted by your critic are not contained in the body of the report, but in a sort of addendum, thrown in with a deprecatory remark, as slightly corroborative of the report. Perhaps it had better have been left out, but not for the reason your critic suggests, for that is based upon an entire misunderstanding of the figures. He says:

	1869.	1888.
Total population	894,419	1,526,081
Tenement "	468,492	1,093,701
Other "	425,927	432,380

showing that while the tenement population has increased more than 600,000 in the twenty years, the population of the dwellings has increased only 6,500, which is preposterous. And so it is.

If he had read a few lines below, he would have seen that in 1869 the tenement-house was one containing four or more families, and in 1888 one with three or more—i. e., the tene-

ment-house population in 1888 includes all persons living in houses occupied by three families, which were included in the other part of the population in 1869. The exact population of these houses I can not give just now, but it probably constitutes the greater part of the class included in my tables as living in houses containing less than twenty tenants. These amounted to 121,815, a certain proportion of which, say 100,000, is to be deducted from one class and added to the other in order to make the comparison your critic desires to make. This would give, instead of his figures, a tenement population in 1888 of 993,701, and a dwelling population of 532,380, or, as compared with 1869, an increase of 535,209 in the tenements and of 106,453 in other dwellings, which is probably not far from the true proportion.

ROGER S. TRACY, M. D.

* * * Whether or not our remarks on Dr. Tracy's figures were "offhand" and "airy," our readers can determine for themselves by reference to the article, which was published in our issue for June 29th, on page 718. The article opened with the intimation that it dealt with Dr. Tracy's statistics "as given in the newspapers." So long as the results of scientific investigations are given to the newspapers in advance of their publication in a complete form, the inadequate versions given in the newspapers will necessarily be taken as the basis of criticism.

A GUNSHOT WOUND DISGUISED BY A STAB.

BRADFORD, PA., July 12, 1889.

To the Editor of the *New York Medical Journal*:

SIR: An interesting case of murder has just occurred here. I wish to call your attention to it, to see if it has a parallel. A dissolute woman shot her lover in a drunken quarrel. The ball (.32 caliber) entered the left thigh at the middle of Scarpa's triangle; the man was sitting in a chair about ten feet from her at the time. She was alone with him in the room for some little time after, and, evidently to cover the shot wound, stabbed him to the bone. The external wound presented nothing different in appearance from a knife thrust, and the first autopsy revealed nothing more. During the progress of the coroner's investigation she changed her first story—that he had stabbed himself—stating that she had shot him in self defense, and afterward "gone after" the ball with a case-knife, to get it out and save him. A second examination resulted in finding the ball.

JAMES JOHNSTON, M. D.

Proceedings of Societies.

MASSACHUSETTS MEDICAL SOCIETY.

One Hundred and Eighth Annual Meeting, held at Boston, Tuesday, Wednesday, and Thursday, June 11, 12, and 13, 1889.

The President, Dr. DAVID W. CHEEVER, of Boston, in the Chair.

Aseptic and Antiseptic Surgery.—Dr. H. L. BURRILL, of Boston, read a paper on this subject, in the Section in Surgery, in which, remarking upon the great value which the new science of bacteriology was destined to have with reference to the department of practical surgery, he proceeded to describe in detail a number of experiments conducted by himself and Grenville R. Tucker, which were intended to show by what methods and by the use of what chemical agents the various instruments and the separate steps in operative surgery might be rendered practically aseptic.

1. As to the preparation of the room for an operation, he said that all movable objects should be removed; then the room should be carefully swept and dusted, and the walls sponged over with a sublimate solution (1 to 1,000). In emergency cases nothing should be disturbed.

2. As to the toilet of the surgeon and his assistants, their hands should be washed according to the usual methods—viz., soap, nail-brush, etc., then immersed in ether, then in corrosive sublimate solution (1 to 1,000).

3. As to the preparation of the operative field, it should be shaved if necessary, scrubbed with soap and water, and then washed with ether and corrosive sublimate (1 to 1,000).

4. As to the sterilization of instruments, Dr. Burrill concluded that of all methods, that of baking the instruments in an oven at a temperature of from 140° to 160° C. was the best. A higher temperature injured them. Needles should be subjected to a similar process.

5. As to the disinfection of sponges, steaming caused great shrinking; the most satisfactory method, attaining at the same time to well-nigh perfect sterilization, consisted in washing sponges in running water again and again, then placing them in a solution of permanganate of potassium for twelve hours, then washing them in oxalic acid, then washing, then placing in carbolic acid (1 to 40) in jars, and storing for future use.

6. As to ligatures, they should be taken from original bottles, wound upon glass spools, and placed in a solution of corrosive sublimate (1 to 1,000) in a bottle specially designed by Mr. Tucker.

7. As to irrigation, corrosive sublimate (1 to 4,000) was most satisfactory.

8. As to the dressings, to render them aseptic they should be taken in the shape of bleached gauze, and subjected to a temperature of 150° C., then saturated with a ten-per-cent. solution of glycerin, then dried. Thus treated, they were possessed of marked absorbent properties, excelling in this respect all other dressings.

In conclusion, the author urged the importance of putting these methods into practice, and, though he admitted the difficulty of absolute sterilization, yet it was possible to approach very closely thereto. Every surgeon, he thought, should operate with thoroughly cleansed hands, with thoroughly cleansed instruments, upon a thoroughly cleansed patient.

In the discussion, Dr. J. C. WARREN, of Boston, remarked upon the ill effects oftentimes arising from a too free use of the so-called germicides in efforts to procure asepsis. The safety of drugs in this respect was inversely proportional to their power as germicides. Boric acid, for instance, was perfectly safe, yet had no antiseptic action whatever, as it was used in ordinary wounds. He could not advise too strongly against a too lavish use of antiseptics in the dressing of wounds. He cited a case of carbolic-acid poisoning in a patient suffering from slight burns of the hands and face, which had been treated with carbolyzed vaseline (1 to 40). Since having a patient suffer from high temperature, insomnia, and then delirium, because of a too generous use of iodoform in powder after an operation for protocele, he had ceased using it, preferring the gauze instead. He did not mean to convey the idea that he looked with disfavor upon antiseptics. He would always use germicides with a view of equalizing the equation of personal cleanliness, and of counteracting the general tendency to dirt in patients. Something more was needed than simple soap and water.

The speaker referred to the series of experiments by Watson Cheyne, which tended to prove that different portions of the body were possessed of different powers of resistance to the influence of infection by bacteria and micrococci: for example, the peritoneal cavity was remarkably tolerant of the action of

bacteria or septic materials, and did this not explain the success attending surgeons in their operations in this region, where no antiseptic precautions whatever were taken? Other places more cellular in structure were less tolerant, and disregard in taking antiseptic precautions would show correspondingly bad results in operations.

Dr. A. T. CABOT, of Boston, remarked that the chief use to be made of antiseptics was in the way of preparation—preparation of the hands, sponges, instruments, and surface to be operated on. This being done, we could proceed much as surgeons used to—with care that the instruments did not come in contact with objects not previously disinfected. He said that the two agents most promotive of putrefaction, and thus of poor results in operations, were (1) moisture and (2) heat. The former could be largely done away with by proper attention in applying the dressings. All blood should be scrupulously sponged out before closing the wound; a drainage-tube should be properly introduced, and then firm pressure made and kept up while the outside bandages were being arranged, and in this manner prevent the filling up of the wound with blood and serum. It was often desirable to sew the deeper parts of a wound together, so that healing by first intention might result. As to the use of iodoform, boric-acid powder, etc., he believed that the explanation of their favorable action on wounds and suppurating surfaces was to be found in their drying qualities. Dressings should always be dry and have great absorbent power. When impregnated with these powders, they possessed these qualities to a marked degree, and so kept the wound dry and promoted rapid healing. If he were compelled to abandon either antiseptic washes or dry dressings, he would unhesitatingly give up the former.

Antipyretics.—In the Section in Medicine, Dr. E. N. WHITTIER, of Boston, read a paper on this subject, which began with a definition of normal temperature and allusion to the methods by which it was maintained. It was contended that heat production and heat dispersion, occurring under the controlling influence of the thermotaxic mechanism, determined a condition which in health prevailed, and was called *normal temperature*. The subjects of the various papers which had of late appeared on the topic of fever were next brought up, and it was maintained that it was needful to set forth the prevailing views concerning the nature and origin of fever before an intelligent discussion could be held on the subject of the treatment of fever. This the reader proceeded to do, and cited various authorities to prove that bacteriology, as well as experimental pathology and physiology, were all agreed as to the nervous theory or doctrine deserving all the prominence that it had obtained. He defined fever as a symptom complex in which disordered heat occupied the dominant position and was necessarily the essential feature, and associated therewith, so intimately as to be a part of the process, were the derangements in the functions of the circulatory, respiratory, muscular, digestive, glandular, and other structures.

Papers by Dr. McAllister, Dr. Maclean, Dr. Anstin Flint, Professor Welch, Professor H. C. Wood, and prominent physicians of the German school, were summarized, and a synopsis was given to substantiate the prevailing beliefs as to the nervous origin of fever.

Antipyresis was defined to include all measures taken to reduce temperature and to resist the noxious influence of the various infections and toxic fever-producing agents. Antipyretics were divided into antifebrile and antithermic remedies.

Antifebriles included the false antipyretics so called which acted on the vaso-motor system, and all measures which were conducive to the abstraction of heat and at the same time to the impairment of tone to the nervous system or to the ener-

gizing nerve centers. Under the head of antithermics were classified the modern synthetical compounds which belonged to the aromatics. The remaining portion of the paper was devoted to the discussion of the qualities and properties of those antithermics whose physiological, therapeutical, and toxicological attributes had been, by careful experiment both at the bedside and in the laboratory, proved to be of value in controlling high temperatures. They included antipyrine, acetanilide, phenacetine, and methacetine or pyrodine. The most valuable feature of the whole paper was the phenomenal showing by the author of the powerful influence in the control of infectious diseases of the reduction of temperature in the energizing nerve centers through the means of cold baths as antifebrile agents. A careful review of the various papers that had been written on the subject, particularly of the results obtained by Brand, of Stettin, and his followers, both German and French, showed that results of treatment by all previous and present methods for the control of infectious disease (chiefly typhoid) and the reduction of the mortality rate were insignificant as compared with the results obtained by cold baths and antifebrile remedies. Statistics furnished by Ziemssen, by Brand himself, by Glenard, and the summary recently published by Baruch, were collocated and reduced to tables to likewise show that no other method had ever shown any results approaching this in the reduction of the mortality rate. The paper was brought to a close in giving utterance to the wish that this method should find more frequent use, and that we should no longer ignore its claims to our approval. The paper was discussed by Dr. F. C. SHATTUCK and Dr. F. H. WILLIAMS, of Boston.

On Pain in the Small of the Back and Hips.—Dr. J. A. JEFFRIES, of Boston, read a paper on this subject before the general session of the society.

Modern Methods in Teaching Clinical Obstetrics.—Dr. EDWARD REYNOLDS, of Boston, read a paper on this subject in which he spoke of the larger amount of material now at the command of the department of obstetrics at the Harvard Medical School, and said that systemization now enabled them to make the fullest use of the same for clinical teaching, and thus the student was now enabled to enter practice better equipped than ever before for his work. He proceeded to give in detail the steps in the management of patients from the time of their first placing themselves in charge till their subsequent discharge, and mentioned the duties which thereby devolved upon the students detailed to manage the cases. In conclusion, he gave a summary of the cases of persons treated for the past year as out-patients at their homes, and surrounded as they were by the most unfavorable sanitary conditions, and showed how the mortality rate had been less than one tenth of one per cent.

The Treatment of Malignant Disease by Escharotics.—Dr. J. C. MUNRO read a paper with this title in which he emphasized the fact that only in a small number of cases was treatment by escharotics advisable, and then only when treatment with the knife or sharp spoon was impossible. Next to the actual cautery, he considered nitric acid to be the strongest of caustics, then sulphuric, hydrochloric, glacial acetic, chromic, and carbolic acids in the order named. The two most convenient forms of escharotics were chloride of zinc and arsenic in the form of pastes; the latter to be preferred, since it was far less painful. The best paste was one consisting of acacia, one part; arsenic, two parts. This should be applied over the diseased area for about three days—*i. e.*, till a line of demarcation formed—then a poultice should be applied. The author then gave a short review of methods of treatment by caustics, by famous men of more or less questionable repute, from the earliest recorded times down to our own day. He brought his paper to a close by earnestly advocating an intelligent

and skillful use of escharotics, since they were oftentimes eminently indicated, and their use was attended by an extremely small risk to life. He knew that a prejudice existed against their use, partly due to their being employed by quacks, but also to a lack of familiarity in employing them; but should we not seek to rescue patients who, from fear of the knife, fell into the hands of quacks? Should we not, to this end, strive to make their treatment our own?

The Annual Address was delivered by Dr. HENRY P. WALTER, who spoke of the little attention which was paid in Massachusetts to matters relative to the practice of medicine, so far, at least, as the prevention of disease was concerned. He called attention to the necessity of a pure water supply and urged the thorough policing of the whole water-shed. He referred to the possible contamination of the milk supply, also to the need of further investigation as to how far it was possible that milk could serve as a vehicle of contagion from the cow to man through the agency of the tubercle bacillus discovered by Koch. He further touched upon the methods of disposal of sewage, and the possibility of sterilization of the products and their use upon lands. In the province of prevention of infectious diseases, he asked whether, since the discoveries by Pasteur, there was not here a very attractive field for original research, and was it not with boards of health alone that such investigations were possible? He concluded by referring to the immense progress made in the last twenty years as to our knowledge of diseases and the means of their prevention. There was still much need of expert work in many departments for the protection of health, and physicians were alone the agents to be employed. We should educate the people in sanitary matters in many directions. We had arrived at a stage in our progress where our knowledge of certain conditions essential to the state of health should become the property of all, and we should heartily join our forces with those of the city and State to further the dissemination of such knowledge.

NEW YORK ACADEMY OF MEDICINE.

Meeting of June 6, 1889.

The President, Dr. ALFRED L. LOOMIS, in the Chair.

On the Dangers of the Spread of Leprosy in the United States.—Dr. P. A. MORROW read a paper on this subject (see page 85).

Dr. C. W. ALLEN remarked that, since listening to this paper and looking at the illustrations, he was more convinced than ever of the desirability of such legislation as should tend to prevent the further spread of this disease. The whole number of cases in this country two years ago had been estimated to be one hundred and fifty. He thought this number now far too small. Dr. Morrow had, in his paper, reported forty-two cases in New Orleans alone. So long as a single leper existed in the United States, so long did the speaker consider the possibility of dissemination of this disease an imminent one.

Dr. L. D. BULKLEY considered this the most important question that had ever come before the Academy. It was possible that the conditions of civilization might so change as to lessen the liability to the disease, but he was certain that wherever the disease had been allowed freedom it had always spread. Formerly he had not feared the spreading of the disease, but latterly he had changed his views, till now he was keenly alive to such a danger. He thought the health authorities should be urged to make careful investigations and report upon the true and exact state of the disease in this country.

Dr. G. H. FOX doubted seriously whether leprosy had really increased in the United States. He admitted that the number

of cases had increased, but these were mostly imported ones, coming from the Sandwich Islands and the West Indies. He believed that liability to increase through contagion was very slight, for, although many lepers lived without restraint in crowded cities, yet there had never been an authentic case of contagion. There were surely other much more dangerous contagious diseases still flourishing among us without restraint, which ought to be first dealt with.

Dr. H. G. PIFFARD reminded the meeting that this very question had been discussed ten years previously, and that at that time a committee had been appointed by the Academy to investigate as to the true status of the disease. At that time they had found between forty and fifty lepers in the United States, chiefly in Louisiana, Wisconsin, Minnesota, and South Carolina, yet now in these same States their numbers had largely increased. He believed that the strictest segregation was necessary, for, wherever this method had been enforced, there had been a marked diminution; as a noted instance of this, Norway was cited. The general Government ought to prevent the entrance of lepers into this country by rigid enforcement of the quarantine laws; yet, once in, such lepers should be compelled by the separate State governments to enter lazarettos.

Dr. F. R. STURGIS did not think the danger an imminent one, and yet he was in favor of steps being taken for calling the attention of the proper authorities to it. This same question had occupied the attention of the Dermatological Society several years ago, and certainly the weight of evidence had then been in favor of contagion. There had always been a lack of evidence to prove this, but the case cited by Dr. Morrow was more valuable in substantiation thereof than the whole number of negative cases cited in support of the theory of non-contagion. He believed the early stage of the disease to be the more contagious. As to the presence of the bacillus as a cause of the disease, he was still a little skeptical. Perhaps, as in syphilis, the presence of this bacillus was adventitious, although many had maintained that it was the cause of that disease. Whatever the origin of leprosy might be, he was convinced of the importance of bringing to the notice of the national authorities the necessity of actively recognizing the possible danger of its increasing. In regard to the suggestion by a previous speaker that syphilis was equally dangerous to the public health, he did not think so, since syphilis was curable, while leprosy, though it may be alleviated by treatment, ended by killing its victim.

Dr. R. W. TAYLOR remarked that the facts presented by Dr. Morrow showed that there was a possible danger of leprosy becoming endemic in this country, and thus destructive to life. In the last fifteen years he had seen on the average from two to three cases a year at the Islands, and, although the patients slept and lived with others unrestrainedly, yet there had never been a known case of contagion. He was not inclined to disregard the danger, nor would he, on the other hand, exaggerate it, feeling convinced that the disease would not prove so terrible as some of the previous speakers thought. Legislation would surely and at the proper time correct the evil. His motto was that "Sufficient unto the day was the leprosy thereof."

Dr. MORROW closed the discussion by asserting that leprosy in the Sandwich Islands had developed under the existing conditions of civilization. The Hawaiian partook largely of animal food and lived under infinitely better conditions than the larger majority of the poorer classes in this country, and yet, under such improved sanitary conditions, the disease had advanced and attained to such fearful proportions. He had not read his paper with a view of inducing legislation on the subject, but only with the purpose of bringing clearly before the medical profession the true condition and status of the disease in Mexico and the Sandwich Islands. He thought, however, that if only

one hundred cases of any other infectious disease existed in the United States and could be stamped out, it would surely be done, and yet this was practically the position of leprosy and no action was taken to do so.

Reports on the Progress of Medicine.

OPHTHALMOLOGY.

By CHARLES STEDMAN BULL, M. D.

The Nature of Light-percipient Organs and of Light Perception and Color Perception.—Gunn ("Roy. Lon. Ophth. Hosp. Rep.," xii, 2) draws the following conclusions from the main facts regarding light-percipient organs: 1. All light-percipient cells are modifications of epithelial cells, or developed from the same embryonic layer which forms them. 2. The ends of these cells corresponding to the cuticle have generally cuticular structures formed in the shape of rods. 3. The opposite ends of these cells are either directly continued as nerve-fibers, or are connected with ganglion cells, and ultimately with nerve-fibers. 4. Pigment is practically always present, either in the light-percipient cells or in close connection with them. Exceptions exist where a tapetum is present and in the rare albino individuals having eyes of high types; but then non-pigmented cells always exist, which are evidently capable of performing similar functions to those of the pigmented cells, though in a minor degree. 5. All forms of vegetable and animal protoplasm sensitive to light are acted on by the shorter waves corresponding to the violet end of the spectrum, and the same holds good in a marked degree in the case of all those light-percipient cells as yet known to act to light. 6. The property of *phototaxis* is universally influential in the manner in which these cells arrange themselves and in the direction in which they contract on exposure. When the cell is free, this effect exhibits itself in free phototactic motion, while in the case of attached retinal cells it shows itself in contraction toward the incident light. 7. The pigment cells have the property of secreting chemical fluids according to their exposure to light and shade, and the pigment contained in them is doubtless of service as being light-absorbent, and thus aiding a rapid transformation of light-energy into protoplasmic action. 8. The result of the action of the secretion of the pigment cells on the segments of the light-percipient cells may be demonstrated by the electrical current produced. 9. The strength of this current depends upon two factors—viz., (a) The activity developed in the pigment cell under the action of light, and (b) the depth to which the cone is imbedded in it. 10. In the case of vertebrates this resultant current is greatest on exposure to yellow light. 11. Differences in the action thus produced, and consequently in the nerve-current transmitted to the visual center, are associated in our minds with sensations of differences in color. 12. In regard to the stationary rods, the action induced will probably depend upon the amount of destruction of retinal purple, and the consequent demand upon the pigment cell. As this action is known to depend more on intensity of wave-height than on wave-length, it is improbable that the rods have any higher function than that of transmitting impressions which will be appreciated in our conscious centers as variations in light intensity. 13. The function of the retinal purple is probably mainly to protect the pigment epithelium from too great exposure, and thus to modify its secretion and its action on the end organs imbedded in it. If the peripheral area of the retina were not defended in this manner, strong lateral illumination would have an unnecessarily great and confusing effect. The retinal purple is constantly being regenerated in the living retina during exposure to *diffused* light.

Concomitant Convergent Strabismus.—Lang and Barrett (*ibid.*) draw the following conclusions from their investigations upon this subject: All evidence tends to show that in cases of concomitant convergent strabismus, treatment is of value chiefly for cosmetic purposes. There is no definite evidence to show that valuable improvement in the vision of the amblyopic eye ever takes place under any circumstances.

Good vision in the squinting eye is retained usually in cases of strabismus in which the disease appears later in life than usual—*i. e.*, after five years of age. Many of the cases which begin late in life are cases of alternating strabismus in which excellent vision exists in each eye. In a fair number of these cases of late origin the extinction of vision by nebulæ seems to cause the strabismus to appear. In the great majority of cases of concomitant strabismus (excluding alternating cases) the amblyopia is irremediable. Correction with glasses, prolonged monocular use of the amblyopic eye, cure of the squint, and even the re-establishment of binocular vision, all fail to produce any valuable improvement in vision. It is only at a very early period of life that the amblyopia is capable of being produced; we should regard the amblyopia as being due not to a deterioration of vision but to a failure of development. It is probable that in these amblyopic cases there is failure to educate the visual sense at the only time in life when the education is possible—viz., when the sense in the other eye is being acquired. A minority of cases of amblyopia are probably congenital in origin, and the amblyopia in these cases probably determines the development of the strabismus. It seems that the existence of hypermetropia is almost essential for the development of squint; and astigmatism or irregularities of refraction frequently exist in the squinting eye. These latter conditions are found so early in life that the explanation of their presence on the ground of arrested development from disease must be rejected, and we must believe that in many cases they are causally related to the strabismus. After the enumeration of every possible cause, however, there remains something which can not be explained—a "further something" which determines the presence of strabismus in one case, and the absence of which negatives the presence of the strabismus in an exactly similar case in all other respects. That this something is transmissible seems probable from the records of our cases.

The Prognosis and Treatment of Chronic Glaucoma.—Nettleship (*ibid.*) considers that one obstacle to the formation of a trustworthy decision on any of the clinical features of glaucoma is found in the long duration of some cases even when left entirely untreated; another in the doubt which occasionally surrounds the diagnosis of the disease in the earlier stages; another in the optical inconvenience which a large iridectomy often occasions; another in the common belief that if iridectomy be done when the field is already contracted, the operation is apt to be quickly followed by a further loss of visual area. In most cases of chronic glaucoma the changes and the symptoms progress steadily to total blindness within a period varying from some months to a couple of years. In a great many cases the second eye suffers before very long; and when the stage of blindness has been reached, the eyes usually remain quiet. Several of the factors in the glaucomatous process may vary considerably in relation to each other. The degree of tension in the quietest forms is sometimes never perceptibly increased. The pupil and anterior chamber may be almost, if not quite, natural. The depth of the excavation in the optic nerve bears no constant relation either to the atrophic pallor of the disc or to the degree of tension of the eye. We sometimes meet with appearances in the disc which are very suggestive of glaucoma though without any symptoms or results of the disease. This shows the importance of any facts which tend to prove that chronic glaucoma begins rather in the optic nerve than in the ciliary region. We should be very cautious in inferring that a person whose discs show changes resembling those of glaucoma is really safe, however free he may be from the symptoms or other signs of the disease. Glaucoma is sometimes markedly hereditary. The occasional extreme chronicity of glaucoma precludes us from saying with certainty whether the disease ever really stops short of blindness. Nettleship regards it as fair to infer that where one eye has been operated on and the other not, a permanent or prolonged arrest of downward progress in the operated eye is attributable to the operation. As regards the question of symmetry, it is probably safe to infer that in something like two thirds of the cases the disease is sooner or later symmetrical in the two eyes. It is not probable that eserine is effective in stopping the progress of chronic glaucoma, except in rare instances, though it may help to keep the disease at bay for some time. As regards the stage of the disease, an operation is much more likely to succeed if performed early in the disease than late. The state of the field

affords no constant guide. Acuteness of vision has no necessary relation to success or failure. The degree of cupping and pallor of the disc afford no constant guide to the future. The state of the pupil seems to furnish the best prognostic guide. Health and age seem to exert a decided influence on success. Senile cachexia in its various forms is distinctly unfavorable to operation. Absence of senility and an active pupil are favorable points. Nettleship regards it as our clear duty to operate in chronic progressive glaucoma, and the earlier the better, and that even in advanced cases an operation should be performed unless there are special reasons rendering it undesirable. Many of the cases which fail unexpectedly do so owing to some unfavorable process going on at or near the wound. Some of these come under the heading of "malignant glaucoma." Displacement of the lens, caused by the suddenly reduced tension at the operation, probably accounts for some of these. But it would seem that when the suspensory ligament is unsound, the intra-ocular blood-vessels are often unsound also, and the eye may subsequently be lost by hemorrhage. In other cases a chronic inflammation is set up in the wound, leading to slowly progressive haziness of the cornea, or to permanent thickening and irritability of the scar. Nettleship prefers iridectomy to sclerotomy in chronic glaucoma.

The Harmonious Non-symmetrical Action of the Oblique Muscles explains Binocular Astigmatism.—Savage ("Amer. Jour. of Ophth.," Sept., 1888) believes that the cause of "binocular astigmatism" is the harmonious non-symmetrical action of the oblique muscles—that is, the superior oblique of one eye acts with the inferior oblique of the other in such a way as to rotate the eyeballs so as to always keep the naturally vertical meridians parallel, thus preventing double vision. This habit of rotation is formed early, and continues throughout the life of the individual, unless a pair of correcting lenses are given. At first, even with the glasses, the old habit of rotation may continue, and, if so, some of the phenomena of binocular astigmatism will appear.

Disturbance in the Nutrition of the Cornea of both Eyes in consequence of Gastric Fever.—Despagnet ("Rec. d'ophthal.," Sept., 1888) reports a case of this kind occurring in a man aged forty-three. For two years he had suffered from a general malaise, vertigo, and indigestion, and, about three weeks before Despagnet saw him, he had been seized with a violent headache, which was followed in a few days by fever with gastric complications. When Despagnet saw him there was marked circumcorneal injection and slight obscuration of vision, due to a central infiltration of the cornea. The patient's condition was always better in the afternoon. The ocular complication became better as the patient's gastric troubles were ameliorated.

Suture of the Cornea.—Gillet de Grandmont (*ibid.*) reports the case of a child, aged three, who received an irregularly triangular wound of the cornea from a sharp stone. Twenty-four hours later there was a perceptible diminution in volume of the eye, and the vitreous presented through the wound in the cornea. The child was etherized and the entire *cul-de-sac* carefully washed out with an antiseptic solution. The prolapsed vitreous was cut off, the lips of the wound brought into coaptation, and held in place by the introduction of three very fine silk sutures, which had been sterilized and left untied. The operation succeeded perfectly, and two years later the eye, though one third smaller than the other, was not misshapen. The cornea showed a central leucoma, but was not staphylomatous, and there was a small anterior chamber.

Naphthol in the Treatment of Purulent Ophthalmia.—Valude (*ibid.*) regards antiseptic applications as of great importance in the treatment of purulent ophthalmia, and advises strongly the use of naphthol for this purpose. He employs the variety known as *naphthol a*, in a solution composed of distilled water, 1,000 grammes; naphthol *a*, 0.50 gramme; and alcohol, 25 grammes. These applications of naphthol in solution are especially valuable in causing a disappearance of the swelling of the lids, and may be used as often during the day as may seem desirable.

Infectious Keratitis and its Treatment with Creolin.—Galezowski (*ibid.*) strongly recommends creolin in the treatment of this disease on account of its superior parasiticidal qualities. He employs a solution of ten centigrammes of creolin dissolved in ten grammes of water, and touches the ulcers once or twice a day with this solution. He also employs a spray of half this strength directly upon the naked cornea, for one or two minutes, five or six times a day.

The Notation or Designation of Astigmatism.—Suarez de Mendoza (*ibid.*) thinks that by modifying the disc of Javal's apparatus the symmetrical designation will give satisfaction both to those who only make a subjective examination and to those who employ the ophthalmometer. The symmetrical designation with regard to the axis of the body should be preferred to the designation with reference to the median plane of the eye, as it is easier to express and fully as easy to understand. In the dissymmetrical designation proposed by the Committee of the Ophthalmological Society the numbering of the test-lens must start from the same point as that of the other apparatus, in order to refer all the angles to the same line. In both systems Mendoza proposes to describe myopia by M. and hypermetropia by H.; myopic astigmatism by Am. and hypermetropic astigmatism by Ah. He also proposes to retain the sign \pm of Javal for describing the result of the ophthalmometrical examination, or indicating which meridian is of the highest refraction without being always the defective meridian. He also proposes to retain the signs + and - in prescribing glasses which are to be filled by the opticians, writing first the number which indicates the degree of the angle, next that of the cylinder, and finally that of the glass.

Metastatic Carcinoma of the Chorioid.—Schapring ("Amer. Jour. Ophthal.," Oct., 1888) reports a case of this kind occurring in a woman aged fifty-one. In October, 1885, the right breast and axillary glands were amputated for scirrhus; the wound healed by first intention, and there was no subsequent return of the disease *in loco*. In August, 1887, she accidentally discovered that the sight of the left eye was almost gone, though she could still see objects situated at the side. Her health also began to fail and she became cachectic. In October there was a large quantity of fluid in the pleural cavity. The left pupil was dilated and immovable. The central and upper part of field was gone. The media were clear and the outlines of the disc were well defined. In the region of the yellow spot and outward there was a reddish-white discoloration about four times the size of the disc, the refraction of which was +D. 3.50, the rest of the fundus being emmetropic. This was traversed by a few thin blood-vessels. Below this there was a serous detachment of the retina. The patient died two months later. The autopsy showed a large number of round cancer nodules in both lungs and the liver. An examination of the eye showed numerous epithelial cells in the chorioid, similar to those found in the scirrhous tumor of the breast.

Is Astigmatism a Factor in the Causation of Glaucoma?—Theobald (*ibid.*, Oct. 1888) thinks that in astigmatism the direction of the meridians of greatest and least refraction determines, to a marked degree, the amount of the asthenopia and other ill consequences which usually attend this form of asthenopia. An astigmatism in which the meridian of least refraction is vertical, or nearly so, will, as a rule, give rise to much more trouble than will one of equal or even greater degree in which the meridian of least refraction is horizontal or nearly so. The eye seems to be capable of rendering this form of error latent through the action of the ciliary muscle upon the lens. By far the greater number of pronounced cases of chorio-retinitis from accommodative strain which Theobald has met with have been associated with this variety of astigmatism. In most cases there are two factors which aid in bringing about the glaucomatous condition: first, a defect or inadequacy in the drainage apparatus of the eye; and, second, an excessive formation of fluid in the posterior chamber of the eye. Among the conditions which have been suggested as capable of producing such an undue formation of fluid in the vitreous chamber, hyperæmia of the ciliary body and chorioid occupies a prominent position. Astigmatism is particularly qualified to produce such a hyperæmia, and thus acts as a factor in the causation of glaucoma. There was well-marked cystoid degeneration at the ora serrata, but the several layers of the retina were well preserved, except at the region of the macula lutea. Here the retina was infiltrated with small cells. The chorioid on the temporal side of the optic disc was markedly thickened and entirely transformed into carcinomatous tissue. The new growth replacing the chorioid is composed of a firm groundwork of fibrillar connective tissue, containing numerous nests of large epithelial cells.

The Pathology of Albuminuric Retinitis.—Weeks's ("Arch. of Ophth.," xvii, 3) observations are based upon the histological examination of six eyeballs removed from as many patients who had suffered

from or had died with disease of the kidneys. He concludes that two classes of retinal disease are included under the present name of albuminuric retinitis. One depends almost entirely on the condition of the blood brought about by an acute disease of the kidneys, the renal symptoms preceding the change in the retina; the other on a general (systemic) diseased condition of the arteries, capillaries, and, to a less extent, the veins, in which the ocular changes and symptoms may and not infrequently do precede the kidney symptoms. To the first class belongs the retinitis of pregnancy, scarlatina, diphtheria, etc., and all forms of acute diffuse nephritis. In these cases the œdema and white plaques are the first evidence; hæmorrhages, more or less numerous, often follow. To the second class belong the cases in which the first retinal change is a hæmorrhage or a few small hæmorrhages, usually in the vicinity of the macula. The œdema and white plaques appear later. Contemporary with, preceding, or following the hæmorrhages in the retina, we may find evidences of capillary hæmorrhages in other parts of the system. The first variety may be termed an irritation nephritis, due to the effect of a morbid element on the kidney tissue, in which the kidney usually becomes enlarged and the circulation interfered with by pressure on the vessels from the swollen tissue. The latter variety is rather a strangulation nephritis, in which the blood-supply is cut off by arterial stenosis, the kidney being always found contracted, and in which the morbid element contained in the blood causes a thickening and degeneration of the walls of the vessels with a diminution of their caliber. Both conditions may exist at the same time in varying degree. A large percentage of the cases of retinitis accompanying albuminuria undoubtedly belong to the latter category.

A High Degree of Astigmatism after Cataract Extraction improved by Operation.—Schlötz (*ibid.*) reports an interesting case occurring in a man aged thirty-three with zonular cataract in both eyes. An iridectomy was made upward on the left eye and the lens was extracted. A portion of the lens matter remained in the anterior chamber. During the healing process a piece of the lens mass was pressed against the inner side of the wound so as to push the corneal flap forward, and this was probably the principal cause of a considerable alteration in the corneal curvature that remained. The eye showed a corneal astigmatism of one dioptré, the vertical meridian being that of maximum refraction. The radius of curvature in the meridian of weakest refraction was 8.26 mm, and in that of maximum refraction was 8.16 mm. About four months after the extraction there was found a corneal astigmatism of 19.50 dioptries. Fifteen months after the operation, the astigmatism having remained about the same, an incision was made upward with a Graefe knife through the base of the most bulging part, and a small flap cut away with scissors. After the wound had healed the eye was again examined, but no change was noticed in the astigmatism. Three weeks later an attempt was made to cut a small flap from the upper lip of the wound, and this operation reduced the astigmatism by 3.75 dioptries. Three weeks later a third operation was done with a Graefe knife, the incision being made upward and inward in such manner that the incision made an obtuse angle with the original corneal section at the time of the extraction. The ultimate result was a reduction of the astigmatism from 19.50 to 7 dioptries. The partial excision of the cicatrix proper exerted only a proportionally trifling effect on the curvature of the cornea; on the other hand, the division of the normal parts adjoining the cicatrix proved very efficacious.

Sixfold Paralysis of the Left Cerebral Nerves.—Grossmann (*ibid.*) reports an interesting case occurring in a woman, aged forty-four, who had always been delicate, and had suffered from diplopia, vertigo, deafness, and tinnitus in the left ear for some time. An examination showed paralysis of the left abducens, slight myopia, left lagophthalmus, deafness of the internal ear on the left side; anæsthesia of left side of forehead and cornea, face and lips; stuttering and slowness of speech. Loss of smell in left nostril and of taste on left side of tongue; tip of tongue directed to the left. There was difficulty of deglutition, weakness in the left extremities, and inability to stand on the feet. The sound-perceiving apparatus appeared diseased, because the drum membrane was normal and the deafness was not relieved by catheterization. The trigeminus was paralyzed in both motor and sensory branches. The left-sided anosmia was partly due to trigeminal anæsthesia and partly to facial paralysis, but the olfactory nerve may

also have been paralyzed. The dysphagia indicated glosso-pharyngeal paralysis, although the same disease in the hypoglossus may have contributed to the difficulty. The poor articulation indicated hypoglossal paresis. The lack of taste arose partly from anæsthesia of the lingual branch of the trigeminus, and partly from disease of the glosso-pharyngeus. There must have been a lesion at the base of the brain to excite so extensive a paralysis of the fifth, sixth, seventh, eighth, ninth, and twelfth pairs, or at the pons. The only support for such a disease in this case was cerebral motor-nerve paralysis. Yet the absence of alternating paralysis of the extremities rendered this diagnosis doubtful. Other symptoms, favoring the seat of the lesion in the pons—were paralysis of the facial and abducens, the excessive trigeminal anæsthesia with anæsthesia of the left extremities, and finally the dysphagia and paralysis of the hypoglossus, as manifested in the disturbance of articulation and defective motion of the tongue. The history seemed to indicate syphilitic gummatous periostitis at the base of the brain, terminating in pressure on the basal surface of the pons. Grossmann administered one gramme of potassium iodide daily, and in ten days the dysphagia began to yield, and in ten more it had disappeared. The tongue also moved more rapidly, and the eye could be voluntarily rotated beyond the median line. The effect of the administration of the iodide seemed to justify the belief that the lesion in the pons depended on bone disease at the base of the skull. In the course of the treatment a sequestrum of bone was exfoliated from the root of the left pterygoid process. This was apparently due to osteitis syphilitica, and proved that a gumma can originate from the embryonal connective tissue in the medullary space as well as under the periosteum. The patient died from a sudden and profuse epistaxis, and, from the manner in which the blood gushed from the nostrils, some large artery, either the carotid or basilar, must have burst from erosion. Although the paralysis decreased and the general health improved, the bone disease continued to progress.

Dyslexia or Dysanagrosia with Autopsy.—Nieden (*ibid.*) reports a very interesting case of this kind occurring in a man, aged thirty-nine, who, for some weeks after a sudden convulsive attack, had suffered from a great loss of strength. The attack lasted about twenty minutes, and was followed by severe pain in the head and nape of the neck on the left side, which was increased by pressure upon a corresponding portion of the vertebral column. Eight days later there was a similar attack, which chiefly involved the upper extremities and lasted half an hour. The patient claimed that he could not read; there was no blurring or swimming of the letters, but an unconquerable inclination to turn away the head. Vision was normal with his hypermetropia corrected. In testing the near vision the patient read correctly the first four lines of No. 1, and then suddenly turned away the look, declaring that he could read no further, and, if persuaded to try again, the mental exertion was followed by a sort of fainting attack, and he complained that he perceived a peculiar foul odor. The visual fields and color sense were normal. Fourteen years before, the patient had had a similar convulsive attack. About a month after the second attack an acute gastro-enteritis set in without any assignable cause. The patient complained of general headache and drowsiness, and gradually sank into a soporific condition. The pupil of the left eye became dilated, but reacted normally. Two weeks later there was retention of urine, and three days after this, paresis of the facial muscles and extremities of the right side was noticed, which on the next morning had disappeared. The patient slept almost continuously, and died comatose three days later. The autopsy showed a discoloration of the parts in and around the corpus striatum. A section through this region showed three apoplectic foci, each in a different stage of transformation. The largest focus, the size of a walnut, situated in the anterior portion of the corpus striatum, was surrounded by a delicate sheath of connective tissue. All the white substance anterior to the inferior frontal convolution was involved in a state of yellow softening. The second focus, situated above and behind the first, was smaller, and its consistence and color indicated a more recent origin. It was also surrounded by a well-marked capsule. The third focus, about the size of a pea, was the most recent. It occupied the center of the lenticular nucleus and consisted of two fresh blood-clots. The central portion of the nucleus was destroyed, and the surrounding tissues were œdematous. There was at

no time in the course of the disease any amnesic or ataxic aphasia, agraphia, or a loss of the ability to understand spoken language.

The Magnet Operation.—Neese (*ibid.*), from his observations, thinks that the magnet is especially adapted for the removal of foreign bodies from the lens, from the fact that the loose and swollen tissue of the latter offers very little mechanical resistance to the action of the magnet, while it is easier to find the fragment in the cloudy mass, and there is less danger of penetration into the vitreous. Extraction of foreign bodies in the anterior segment of the eye is usually successful, and with fairly good results as regards sight. The electro-magnet in a certain number of cases is not necessarily indispensable; in others it is positively contra-indicated; in a third class it does not fulfill the end in view. For the successful extraction of foreign bodies situated in the posterior portion of the globe, viz., (1) the foreign body must be freely movable; (2) the distance to it must be short. When surrounded by exudative masses, firmly imbedded in the membranes of the eyeball, or inclosed in a capsule of connective tissue, the foreign body is immovable and therefore inaccessible to the magnet. The advantages of early operation are therefore quite obvious.

The Pathological Anatomy and Pathology of Optic Neuritis.—Picqué (*ibid.*, Sept.—Oct., 1888) insists upon the necessity of establishing the line of demarcation between the retina and the intra-ocular expansion of the layer of optic nerve-fibers in the eye. The independent circulation of the retina and of the ocular expansion of the optic nerve, the functional integrity of the retina coinciding with the most advanced alterations in the optic nerve, sufficiently justify this claim. For example, retinitis albuminurica presents in its principal alterations the type of the neuritis of the intra-ocular expansion of the optic nerve; apoplectic retinitis, at least in one of its most important varieties, becomes a complication and a symptom of atheromatous changes in the vascular system of the optic nerve. From the point of view of the relations of stasis to papillitis, it may be said that it is impossible to establish a precise limit between papillitis and papillary stasis, so that we are authorized in considering the stasis, not as the first stage of a condition which may or may not lead to papillitis, but as a very frequent variety of papillitis. In the present state of our knowledge we can no longer preserve the distinction between papillary stasis and papillitis, a distinction based on the deduction of an erroneous clinical fact and on a pathogenetic theory which subsequently we shall prove to be false. The oedema here present must be regarded as of inflammatory origin, the result and not the cause of the papillitis. The walls of the arteries are thickened and the vessels are varicose and diminished in caliber, and this diminution is especially marked in the small vessels and capillaries. It is a variety of endarteritis obliterans resembling the syphilitic endarteritis of Lancereaux and Heubner.

The Value of the Caутery in the Treatment of Ulceration of the Cornea.—Renton ("Ophth. Rev.," Oct., 1888) recommends strongly the galvano-cautery in the treatment of ulceration of the cornea. The cautery is to be applied lightly, and, where necessary, the corneal layers are penetrated into the anterior chamber. Renton considers traumatic ulcers at all stages and idiopathic ulcers of all kinds as suitable cases for the cautery. These may often be benefited, especially when recurring in strumous children and weakly women, rheumatic and gouty subjects, or those suffering from granular ophthalmia; the granulations may also be cauterized with great advantage.

Conical Cornea treated with the Actual Caутery.—Williams (*ibid.*) advocates the treatment of conical cornea by cauterization. One application to the apex of the cone immediately reduces the conicity and leaves a deep pit. This heals as an ulcer, and leaves a small, firm scar, rendering further ectasia practically impossible. He advises against the opening of the anterior chamber. He recommends this plan of treatment on the following grounds: 1. Its extreme simplicity. 2. Its freedom from danger and ease of performance. 3. Its good results, both visually and as regards the arrest of the morbid process.

The Treatment of Symblypharon by Transplantation of Mucous Membrane from the Lip.—Meighan (*ibid.*) prefers to transplant the mucosa of the patient's lip rather than the conjunctiva of the rabbit. After having repaired the original defect as well as possible by the surrounding conjunctiva, the remaining defect is to be mapped out on the inside of the patient's lower lip, and the mucous membrane is then to

be dissected off, making ample allowance for subsequent shrinking. The mucosa must be carefully cleaned of the labial glands and of any fat, washed with a 0.2-per-cent. solution of corrosive sublimate, and stitched in its new position with a sufficient number of sutures. The eye is then to remain bandaged for twenty-four hours.

Hyalitis Punctata.—Benson (*ibid.*) proposes to designate by this name a condition observed on or in the neighborhood of the anterior portion of the hyaloid membrane, exactly similar in appearance to that observed so commonly on the posterior surface of the cornea in cases of serous iritis. There appear a number of punctate opacities in the position of the posterior capsule of the lens, exactly similar in arrangement and appearance to those on the cornea. These can only be seen when a strong lens (+ D. 26) is used in the ophthalmoscope. They extend over a considerable area and seem to lie on a plane at right angles to the corneal axis. They do not extend to any depth in the vitreous, but lie on or close to the posterior capsule. These spots are not to be mistaken for the dust-like opacities seen in specific disease. There is usually evidence of old chorioiditis.

The Relation of the Orbital Opening to Myopia.—Weiss ("Kl. Mon. f. Aug.," Sept., 1888) formulates his views as follows: It is theoretically doubtless correct that when the entrance to the orbit is low, the anterior insertion of the inferior oblique and the trochlea are nearer each other, and that consequently both muscles surround the globe to a greater extent. The form and size of the orbital opening are therefore of some consequence in relation to the insertions of the muscles, and the latter is also of importance in relation to the course of the ocular muscles and their consequent pressure on the globe. It can not be denied that these may be important factors in the causation of myopia, in so far as a certain portion of the pressure exerted on the eyeball by the muscles depends upon them. The orbital index is actually smaller in myopes than in emmetropes or hypermetropes. Weiss advises a very careful examination of the shape of the skull and opening of the orbits on both sides in all cases of anisometropia, as a possible means of elucidating this question. Usually in these cases the two sides of the skull and face will be found asymmetrical.

The Pupillary Reaction.—Heddaeus (*ibid.*, Oct., 1888) calls attention to Magnus's scheme for recognizing the disturbances of the movements of the pupil caused by diseases in various parts of the reflex tract which presides over the pupillary reaction to light. He proposes a modification of this scheme by designating by the single expression "reflex sensibility" the power of the eye or retina to carry or conduct a light-wave or irritation to the centers of the oculomotorius. The course for the light-reflex consists of a centripetal part (the centripetal pupillary fibers) and a centrifugal part (the pupillary branch of the third nerve), and of the nucleus which represents the union of the two (pupillary nucleus of the third nerve). Anomalies in the centripetal portion cause disturbances of the reflex sensibility (retina); anomalies of the centrifugal portion cause disturbances in the motility of the pupil; anomalies in the nucleus cause disturbances in both as follows: I—1. Destruction of the right optic nerve causes reflex dullness or blindness of the right eye. 2. Destruction of the right optic tract (or of the tubercula quadrigemina, or of the fibers of Meynert on the right side) causes reflex blindness of both right halves of the retina. 3. Median sagittal section of the chiasm causes reflex blindness of the nasal half of both retinae. II—Destruction of the right pupillary branch of the third nerve causes mydriasis and immobility of the right pupil. III—Destruction of the right pupillary nucleus causes mydriasis and immobility of the right pupil.

Stereoscopy by Difference of Colors for the Normal and the Color-blind Eye.—Grossmann ("Ophth. Rev.," Nov., 1888) refers to the investigations of Einthoven upon this subject, who considered that the real reason why some colors seem to stand out more prominently than others consisted in the eccentricity of the eye and the symmetrical arrangement in the fellow-eye, whereby the red rays are united on a more temporal part of the retina than the blue rays. He considered also that the position of the pupil was of great influence, but that there was very little accessory help on the part of the accommodation. Grossmann considered that the phenomenon, at least in his own case, is attributable principally to accommodation. In testing, he arranges the two colors, red and blue, in a simple way, so that they form a perspective

drawing, and the stereoscopic effect is thereby greatly facilitated. If this figure be shown to some color-blind (red-green blind) individuals, they also perceive the red nearer than the blue, which proves that with them also the act is principally one of accommodation.

Partial Hyperostosis of the Frontal Bone.—Silecock (*ibid.*) reports a case of the above nature in a woman aged twenty. When first seen she presented a swelling over the left eyebrow, round in outline, with smooth surface, and hard and bony to the touch. The left eyeball was displaced forward, downward, and outward. The swelling had existed for two years, and was said to be increasing in size. There was a history of a blow on the eyebrow. Five years later the swelling had become considerably larger. At this time much of the frontal bone was removed with trephine and bone forceps, but it was found impossible to extirpate the growth. Microscopically there was seen a richly cellular and ill-developed connective-tissue growth undergoing ossification.

Miscellany.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending July 19th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	July 13.	1,573,097	1,187						4	10	28	4	12
Philadelphia, Pa.	July 13.	1,046,245	607						11	1	5	6	6
Chicago, Ill.	July 13.	830,000	433						3	14	14	3	
Baltimore, Md.	July 13.	500,343	276						2	1			
San Francisco, Cal.	June 28.	330,000	85								2		
San Francisco, Cal.	July 5.	330,000	106						5		1		
Cincinnati, Ohio.	July 13.	325,000	138						1		11		
New Orleans, La.	July 6.	254,000	122								1	2	2
Cleveland, Ohio.	June 1.	235,000	58						5			3	
Cleveland, Ohio.	June 8.	235,000	73						3		3		
Pittsburgh, Pa.	July 13.	230,000	122						7		1	3	2
Detroit, Mich.	July 6.	230,000	78										1
Louisville, Ky.	July 13.	227,000	82						1			1	
Washington, D. C.	July 13.	225,000	141						4	3			1
Milwaukee, Wis.	July 6.	210,000	41						2	2	1		
Kansas City, Mo.	July 13.	180,000	59										
Rochester, N. Y.	July 13.	130,000	66						2				
Providence, R. I.	July 13.	127,000	63							3	1	1	
Denver, Col.	July 12.	100,000	42						1	1		1	
Toledo, Ohio.	July 12.	83,500	23								1		
Fall River, Mass.	July 13.	69,000	44										
Nashville, Tenn.	July 13.	65,153	21						4				
Lynn, Mass.	July 13.	50,000	12								1		
Portland, Me.	July 13.	42,000	16									1	
Manchester, N. H.	July 6.	42,000	19										1
Council Bluffs, Iowa.	June 24.	35,000	8										
Council Bluffs, Iowa.	July 6.	35,000	2										
San Diego, Cal.	July 6.	32,000	6										
Binghamton, N. Y.	July 13.	30,000	7										
Anburn, N. Y.	July 13.	26,000	6										
Haverhill, Mass.	July 13.	25,000	8										
Newport, R. I.	July 11.	22,000	6										
Newton, Mass.	July 13.	21,553	6										
Keokuk, Iowa.	July 13.	16,000	6										

Scientific Uses of the Eiffel Tower.—M. Janssen, of the Institute of France, is of opinion that the Eiffel Tower will have many scientific uses. One of the greatest difficulties of meteorological observations is the disturbing influences of the station of observation itself. How, for example, can a true deviation of the wind be observed if a purely local obstacle causes it to deviate? And how can a true temperature of the air be determined by a thermometer influenced by radiation from surrounding objects? Thus, the meteorological elements of great centers of habitation have to be taken outside those centers and at a certain height above the soil. The tower, since it rises to a great height, and from the nature of its construction does not modify in any way the meteorological elements to be observed, will get over this difficulty. A height of three hundred yards is in itself not a negligible quantity from the point of view of rainfall, temperature, and pressure, but these cir-

cumstances give all the more interest to the institution of comparative experiments on variations due to altitude; the electrical interchanges between the soil and the atmosphere can also be studied to advantage. Special arrangements can be made for avoiding accidents, and results of great interest should be obtained. M. Janssen recommends also the institution of a service of meteorological photography. A good series of photographs would give forms, movements, modifications which the clouds and atmospheric conditions undergo from sunrise to sunset. Thus a history of the skies would be written on a radius not hitherto dealt with. In physical astronomy various other observations might be taken, especially in relation to the study of the telluric spectrum. M. Eiffel announces that three laboratories have already been arranged on the tower. One will be devoted to astronomy, and the second will contain registering apparatus from the central bureau of meteorology, and will be devoted to physics and meteorology. MM. Mascart and Cornu expect to draw great advantages from its use in the study of the atmosphere. The third is reserved for biology and micrographic study of the air, to be organized by M. Henocque. M. Cailletet is arranging a great mercurial manometer, with which he expects to obtain pressure as high as four hundred atmospheres.—*British Medical Journal.*

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

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Original Communications.

SOME NEW TESTS FOR INSUFFICIENCIES OF THE OCULAR MUSCLES, TOGETHER WITH A SYSTEM OF ABBREVIATIONS SUITABLE FOR NOTE-TAKING.

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THE important part played in the causation of all sorts of nervous diseases by anomalies of the oculo-motor apparatus is becoming daily more and more apparent. Since the epoch-making labors of Dr. George T. Stevens, the proposition that disorders of the muscular mechanism of the eye are a more potent and constant cause of functional nervous affections than any other source of reflex irritation may be considered as established on a firm foundation. Epilepsy, chorea, hysteria, neuralgia, and those aggregations of symptoms which have been vaguely lumped together under the names of neurasthenia, spinal irritation, etc.—in a word, the great concourse of nervous diseases which arise without the production of lesions of the nervous substance—are to a great extent dependent upon eye-strain, and, of the varieties of eye-strain, those which spring from anomalies of the muscular apparatus are the most distressing and the most severe. Nor is this wonderful when the matter is closely considered. Indeed, the wonder is rather that, in view of the obvious facts of the case, anomalies of this sort should hitherto have received such scant attention. It is true that there are many other sources of reflex irritation, all more or less distressing and all capable of producing serious nervous symptoms. The nasal, the oral, and the genital apparatus may each be the seat of some affection capable of giving rise by its presence to asthma, epilepsy, neuralgia, etc. The unfortunate who suffers from hypermetropia or astigmatism is still more liable to reflex troubles, for he is compelled during every minute of his waking existence to exert great and most tormenting strain so as to see with a distinctness sufficient for his daily needs. But he who has a faulty direction of the visual axes or a relative weakness of any of the ocular muscles is in a still worse case. A man, for example, who has a hyperphoria of two or three degrees must, during every minute that he uses his eyes, exert an enormous force, not merely to see distinctly, but even to see at all. Let any one who wishes to realize what a strain this means take a two-degree prism, place it base down before one of his eyes, and then try to read. The sense of confusion will soon become so maddening that few will venture to prolong the experiment beyond ten minutes. And yet this strain is not as great as many of us have to undergo during the whole time that our eyes are open. No one who has not himself suffered from this burden can realize how intolerable it is, how it dissipates the vital forces, how it renders inert and inactive a man of otherwise sound constitution and good mental capacity.

From the frequency of these sources of irritation and the great part they play in the causation of nervous troubles, their consideration is no longer confined to the ophthalmic

or to the neurological specialist, but interests all members of the profession alike. It is true that for their accurate determination and their cure the most painstaking and delicate manipulation is required, such as requires the aid of a special apparatus and a special professional training which the oculist alone can supply. But their recognition does not always or often imply the need of apparatus or of particular skill, and the tests which establish the existence of heterophoria are no more mysterious or complex than the tests of the reflexes in determining the presence of loco-motor ataxia.

The object of the present article is to exhibit briefly the methods and limitations of certain simple tests which do not require instruments, and which therefore can be employed by those who do not possess or who have not the skill to use an oculist's armamentarium. The usefulness of such tests is not, however, confined to this application of them. In all cases they will be found serviceable as adjuncts to the instrumental tests, serving to check and confirm the latter, and in some cases are available where other tests fail or are uncertain.

It may be well, before entering into a description of these tests, to set clearly before our minds what we intend to determine by their aid. The problem for solution—that of the condition of the oculo-motor apparatus—is one both of statics and of dynamics; in other words, what we wish to ascertain is, first, the normal balance and the individual tendencies of the different muscles when the eye is in a state of repose, and the muscles themselves are placed as far as possible in a condition of equilibrium; and, second, the relative power of the individual muscles when set in action, and the resulting capacity of the eye for motion in different directions. Defects in the former regard—that is, in the static condition of the eye—constitute the various forms of strabismus and of heterophoria. Without going into a description of the latter condition, which has already been amply considered in the works of Dr. Stevens, we may say in brief that one or more of the following conditions may exist: Esophoria, or a tendency of the visual axes inward; exophoria, or a tendency of the visual axes outward; and hyperphoria, or a tendency to vertical divergence of the axes. The determination of the direction and the amount of these deviations requires the eye to be placed in a state of complete repose, and, as this condition of absolute equilibrium can never be perfectly attained, repeated and carefully conducted examinations must be made in order to approximate as nearly as can be to the ideal state and to eliminate accidental errors. Defects in the dynamic condition of the eye are constituted by such insufficiencies or such excessive actions of the ocular muscles as cause one or both eyes to perform either too greatly or to too slight a degree the movements of abduction, adduction, and sursunduction. These defects usually coexist with heterophoria, but do not necessarily do so, and their determination requires equally careful and repeated testings. In this case, moreover, the examination can also be made to do service as an exercise for the weaker muscles.

The whole problem, however, whether viewed from the

side of static or dynamic, resolves itself into this query: How far and in what sense do the visual axes deviate or tend to deviate from parallelism both in a state of repose and during the various associated movements of the eyes? With the proposition stated in these terms, it is easy to see that the perfectly acting eye, whether at rest or in motion, will be so directed that its visual axis* is parallel with that of its fellow, while the heterophoric eye will in some position exhibit a deviation of the axis, to overcome which demands an extra muscular effort and a consequent overstrain of nervous energy.

By keeping this preliminary proposition in mind, the consideration of the tests themselves becomes greatly simplified. Like the problem which they are designed to solve, the tests themselves may be either static or dynamic. Of the former kind, which are concerned with the tendency to deviation exhibited by the eyes when in a state of rest, the most obvious—*i. e.*, that afforded by the mere inspection of the eye—is rarely of any service, because the manifest variations constituting heterophoria are often so slight as to be unrecognizable by this means, and also because, when a variation is appreciable, it is often impossible to tell its direction from inspection alone. This is especially the case in hyperphoria, in which the tilting of one eye above the other is often masked by simulated turning in or out (apparent esophoria or exophoria). Corresponding to this rough objective test is the more delicate subjective one furnished by the patient's perception of diplopia when the eyes are in a position of equilibrium—*i. e.*, when the head is in the normal erect position and the visual axes are directed straight forward at an object twenty feet or more distant.† This diplopia is, of course, usually recognized only when the red glass is employed to differentiate the images; and it is quite important to distinguish the cases in which diplopia occurs spontaneously (or can be produced spontaneously by the patient's will) and those in which it is apparent only upon using the red glass. The diplopia may be lateral (being then either homonymous or crossed) or vertical, and in the latter case may be designated as right or left according as the right or left image is below (indicating that the right or left eye is the higher). If prisms are

available, the amount of diplopia can be measured by the degree of the prism which, placed before either eye, causes fusion of the images.

The second set of tests for determining the static condition of the ocular muscles is afforded by the use of the screen. This procedure—mentioned by Landolt ("Examination of the Eyes"), but only in connection with the accommodative movements of the eye, *i. e.*, with the visual axes converging, and employed by Stevens and others when the visual axes are in parallelism—is conducted by placing a screen (such as a card or the hand) before one eye and, while the other eye remains fixed upon one object, observing the direction which the covered eye tends to assume. By shifting the screen from one eye to the other, the eyes being steadily directed toward one object, the eye which is uncovered will, in order to see the object, move in a direction contrary to that which it had assumed behind the screen. For example, with both eyes looking straight forward at a candle twenty feet distant, and with the card placed alternately before either eye, the left eye on being uncovered moves down. The inference is that behind the screen it was standing higher than its fellow—*i. e.*, there is a condition of left hyperphoria.

The screen test as thus performed is a very useful adjunct to the prismatic tests for heterophoria, and if the latter exceeds in amount a couple of degrees, the movement of the eye on shifting the screen is usually quite perceptible. On the other hand, when the manifest heterophoria is less than two degrees, it is difficult to detect any deviation behind the screen. When, therefore, this deviation exists, it is a strong confirmatory evidence of heterophoria; but its absence is not conclusive as to the non-existence of the latter condition, and in some cases—*e. g.*, in such a one as that mentioned in a preceding foot-note—even its presence is not absolute proof either of the presence or of the character of the pathological condition. It can not, therefore, be implicitly relied upon unless checked and confirmed by other methods of examination, and yet it is of great value and should always be called into requisition in testing for muscular insufficiencies.

A modification of the screen test—which, as giving subjective instead of objective indications of the presence of deviation, bears the same relation to the ordinary screen test that the detection of diplopia by the red glass does to the estimation of heterophoria by the mere inspection of the eyes—is the *parallax* test. This, as far as I know, has not yet been employed in ocular examination: I am therefore inclined to regard it as original with myself. It consists in shifting the screen from one eye to the other and making the patient observe if the image moves, and, if so, in what direction. If the patient is in the standard position—head and shoulders erect and eyes looking straight forward at an object twenty feet or more distant—there should, if orthophoria exists, be no movement of the image when the screen is shifted. If, accordingly, under these conditions and after repeated trials, the object observed appears to the patient to always occupy the same position, it may be assumed that, as far as this test goes, there is no tendency to deviation from parallelism of the visual axis.

* The visual axis in some very rare cases seems to be widely different from the optical axis. Thus, in one case in which there was well-marked deviation of the eyes out, both behind the screen and also when any attempt was made at fixation, there were homonymous diplopia and an esophoria of twelve degrees or more. Such a condition can scarcely be explained on any other hypothesis than that the region of most distinct vision was not situated at the normal position of the macula, but at a point considerably external to the latter, so that even when the eyes deviated outward the visual axes were still convergent.

† Or more. In testing for muscular anomalies, twenty feet do not constitute infinite distance. This is seen especially in testing the abduction, which at a distance of twenty feet will often be found to be quite a little greater than at fifty feet and less than at ten feet.

‡ It may be here remarked that in testing the static condition of the eyes, voluntarily produced diplopia does not afford such trustworthy indications as diplopia spontaneously existing. The very act of separating the images by voluntary effort implies a muscular strain which disturbs the relations of the eyes, and which may alter the direction of their axes in a vertical as well as in a horizontal plane. I have once or twice observed this in practice.

If, on the contrary, the image appears to shift its position with the alternate withdrawal and replacement of the screen, there exists what may be appropriately denominated a parallax, and it may be taken for granted that heterophoria exists. The parallax is in reality only a form of diplopia, being produced, as diplopia is, by lack of parallelism of the visual axes; and, like diplopia, it may be homonymous, heteronymous, or vertical. In other words, if, when the left eye is uncovered and the right concealed, the patient sees the test object—*e. g.*, a candle—moved to the left, the parallax is homonymous and the visual axes tend to cross; if the candle-image moves to the right, the parallax is heteronymous (or crossed) and the visual axes diverge; if it moves down, there is vertical parallax (left parallax), indicative of left hyperphoria; if it moves up, there is right (vertical) parallax, indicative of right hyperphoria. Of course, we may have both lateral and vertical parallax combined, in which case both a lateral and a vertical movement of the image will be observed.

The test so performed is exceedingly simple, and yet, from a somewhat extensive trial of it, I am led to believe that it is a very delicate one. The degree of shifting of the images is a measure, approximately at least, of the amount of heterophoria, and, if it is desired to measure the latter precisely, this can be done by placing prisms before the eyes until the images no longer change their position with the movements of the screen. The strength and axial direction of the prisms will obviously indicate the amount and character of the correction to be employed for the heterophoria. Thus, suppose that the image moves down when the right eye is uncovered, a prism of one degree is placed, base down, before the right eye, thus elevating the image. The shifting of the screen still shows a parallax, but now in the opposite sense—that is, the left image moves down. The prism is now revolved until its apex points to 30° , at which point no vertical movement is observed on displacement of the screen. The test therefore indicates a right hyperphoria of about $\frac{1}{3}^\circ$, or, as I prefer to put it, there is a right parallax of $\frac{1}{2}^\circ$. Differences in the level of the eyes of one tenth to one fifth of a degree can usually be detected by the parallax test, and it is thus quite as delicate as the ordinary test for hyperphoria (*i. e.*, the production of artificial diplopia by the use of strong prisms with their bases directed in, and the estimation by the patient of the difference of level existing between the two images), and it has the advantage that one source of error—namely, the failure to perfectly adjust the diverging prisms—is eliminated. Moreover, in all tests performed upon the eyes, the nearer we approximate to the natural state the better; and I think there can be no question but that the use of prisms to produce diplopia introduces an artificial condition, and so tends to disturb the natural relations of the eye and to produce more or less involuntary muscular effort, when what we desire is the completest muscular relaxation possible. Hence I have lately been in the habit of regularly employing, first, the screen and parallax tests, which introduce conditions least removed from the natural; then using prisms to make the ordinary examination for hyperphoria and for lateral insufficiency; and, last of all, testing the

dynamic capacity of the eye by finding the abduction, adduction, etc. This last examination, by calling into play the different recti, tends to temporarily destroy the balance of these muscles, and should therefore be always deferred till the static tests, which presuppose the recti to be as far as possible in equilibrium, have been performed.

Another example of the usefulness of the parallax test in examining for hyperphoria is found in those cases in which we have had the patient wear a trial prism in order to detect the amount of this condition. If, for example, we have suspected right hyperphoria, and, in order to test the matter, have had the patient wear a prism of 1° , base down, before the right eye for a day or so, and, on coming back, he has shown, with his prismatic glasses on, no parallax or ever so slight a tendency to left parallax, we infer that the glass is overcorrecting, and that our suspicions were probably erroneous. For, after wearing such a glass, a patient who really has right hyperphoria of any appreciable amount would show more than 1° of it, and hence would, with his glasses on, exhibit a right parallax. I have found this application of the parallax test very useful, and by its aid have succeeded in measuring very precisely even minute degrees of hyperphoria.

In examining for lateral insufficiency, the parallax test is equally useful and equally delicate, an exophoria or an esophoria of one degree or more being usually evidenced by a distinct movement of the images from side to side. The amount of lateral deviation may be quite accurately measured by the degree of excursion of the images, or, if desired, by the strength of the prism which, placed base in or out, abrogates the parallax.

The parallax test is further of service when we wish to ascertain whether a glass, designed for the correction of refractive errors only, exerts a prismatic effect. For instance, suppose that a patient with hypermetropia shows, when his refractive error is corrected by properly centered lenses set in a trial-frame, no parallax, but that, when he puts on spectacles made for him by the optician, a distinct parallax is obtained, it is evident that the spectacle-glasses are either improperly adjusted or, from some defect in construction, contain a prismatic element. They should now be adjusted upon the face till the parallax disappears or becomes as small as possible, when the error due to the former cause will have been eliminated. Then any error due to improper construction can be measured by noting the strength and direction of the prism which, placed before the glasses, causes the residual parallax to disappear.

The results of the parallax and of the screen tests should always be congruous; and even in such a rare case as that before mentioned—in which, with deviation of the eye outward, there were homonymous diplopia and an esophoria of 12° or more—the parallax was necessarily heteronymous.

All the tests which have been hitherto described are arranged for determining the static condition of the eyes. The dynamic tests, or those which aim to determine the power of the different muscles, are various. Besides the estimation of the abduction, adduction, and sursumduction, by placing prisms before the eyes with the bases in, out, up,

and down, the diplopia produced by which the patient is required to overcome, there is one rough test that I have lately employed with, I think, considerable advantage in estimating the excursion of the eyes inward and outward. It is analogous to the expedient ordinarily employed in examining for weakness of either of the lateral recti—an expedient which consists in moving before the patient's eyes a small object as a pen-point or the finger and watching the behavior of the eyeballs as they follow the latter from side to side. In the modified test, which, for want of a better name, I call the *excursion test*, the object looked upon is stationary and twenty feet or more distant, and the patient's head is slowly turned from side to side while his eyes remain fixed upon the object. The test is both objective and subjective, the physician observing any tendency to deviation which the eyes may exhibit during their excursion, and at the same time requiring the patient to notice any diplopia or other subjective evidence of heterophoria. For the latter purpose, the use of the red glass placed before either eye is almost always necessary. Starting with the standard position, which, borrowing military phraseology, may be designated as "eyes front," the head is successively moved to the right (giving the position of "eyes left") and to the left (giving the position of "eyes right"), and in each position the presence and direction of any obvious deviation of the eye, of diplopia, and of parallax are noted. A case from actual practice will illustrate the applicability of the method. In a patient, previously operated upon by partial tenotomies of both internal and external recti, there were in the "eyes-front" position an esophoria of 1° combined with an abducting power of only 3° and an adducting power of 50° , a tendency to spontaneous homonymous diplopia, and a homonymous parallax. In the "eyes-right" position the homonymous diplopia and parallax were still more marked, increasing progressively till the former could not be overcome by voluntary effort. In the "eyes-left" position the conditions were reversed, the homonymous diplopia and parallax diminishing to zero and then becoming heteronymous. In other words, as the eyes moved in association to the right, there was a progressively increasing tendency to convergence, and, as they moved to the left, an increasing tendency to divergence of the visual axes. Moreover, the position of equilibrium for the eyes was not in the position of "eyes front," but in a slightly "eyes-left" direction. To explain these phenomena, any one of the following hypotheses may be advanced:

1. The movements of the left eye are excessive both in abduction and adduction, without impairment of the functions of the muscles of the right eye. This hypothesis is scarcely tenable, especially in view of the restricted adduction (only 3° instead of the normal 8°).

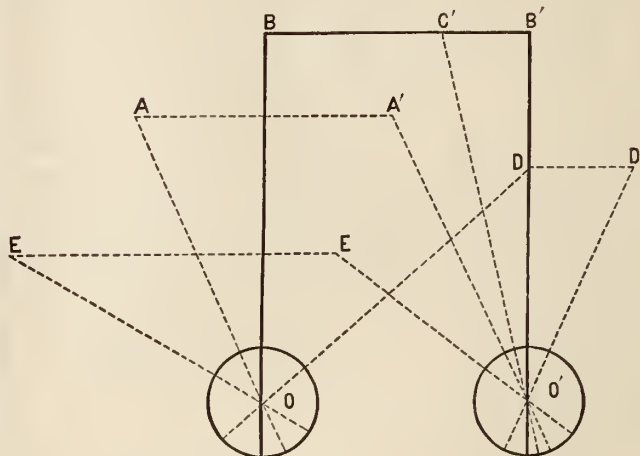
2. The movements of the right eye are restricted in both abduction and adduction.

3. A combination of restriction of movement of the right eye with excessive latitude of motion of the left eye exists.

4. There is a tendency to associated deviation of both eyes to the left, together with excessive abduction of the left eye and restricted abduction of the right, the

adduction of the latter being normal or more probably diminished.*

This last hypothesis seems most probable. It is indicated in the accompanying figure, in which, when the eyes



are directed slightly to the left, the axes OA and $O'A'$ are parallel without there being any extra tension upon the muscles. On moving to "eyes front," the axes OB and $O'B'$ are still parallel, but are maintained so by an effort of the weak external rectus of O' , which has had to pull the eye through the angle $A'O'B'$, while the strong internal rectus of O has no difficulty in carrying it through the angle AOB . Hence, while O is maintained in its position there is a constant tendency of the axis $O'B'$ to fall into $O'C'$, producing homonymous diplopia and parallax. As the eyes are carried still further to the right, this tendency becomes more and more marked, and in extreme "eyes right" the axes OD and $O'D'$ make a distinct angle with each other, producing well-marked and invincible homonymous diplopia. On the other hand, as the eyes sweep to the left, the strongly preponderant abduction of O carries the eye readily through the angle AOE , while, the adducting power of O' being comparatively feeble, this eye is carried through the less angle $A'O'E'$, and a condition of divergence of the axes with crossed diplopia and parallax exists. The indication for operation in such case will be tenotomy of the right internal rectus, in order to prevent the tendency of O' to look toward A' and in order to give the eye with feebler muscular action (and especially with feebler abducting power) the easier task to perform. The operation being performed in such a way that O' now looks straight forward to B' , we would have now in "eyes front" a slight tendency to exophoria (readily overcome by the strong adduction of O), and, as the relative abducting power of O' is increased by the weakening of its internal rectus, a much smaller tend-

* In the statement of these hypotheses, abduction does not necessarily mean absolute abducting power, but rather the net capacity of the eye for turning out—i. e., the maximum power of the external rectus minus the minimum power of the internal rectus. Accepting this definition of abduction with the complementary one of adduction, all the above hypotheses may be reduced to the general statement that in the case under consideration both the abduction and the adduction of the right eye are below the normal, while the abduction and the adduction of the left are in excess.

ency to homonymous diplopia and parallax on rotating the eye to the right.

A number of other cases might be cited in which this test has shown itself useful in determining the dynamic relations of the two eyes and furnishing indications for treatment. It is sufficient to say that in my own practice I have found it a serviceable procedure and one which I would never omit when making an examination for heterophoria.

The corresponding test for the dynamic condition of the superior and the inferior recti—*i. e.*, by placing the eyes in the position "eyes up" and "eyes down"—may be employed, but is difficult of application and is usually conducted only with the visual axes in convergence. The ordinary excursion-test ("eyes left" and "eyes right") can likewise be employed with the visual axes convergent.

The recording of the results obtained by these various tests is much simplified by the use of the following abbreviations, which I have lately employed and have found of advantage as saving both time and space and as rendering it easy to exhibit in tabular form, suitable for ready comparison, the records of the examinations from day to day. Many of these abbreviations are already in use and are only given here for the sake of completeness; others have been used by Dr. Stevens and other investigators in this special field; while others still are my own invention, designed to represent the new terms introduced in this paper.

TABLE OF ABBREVIATIONS.

Ab.—abduction.	E. d.—eyes down; position (of deorsumversion) in which visual axes are parallel and both directed down.
Acc.—accommodation.	E. d'—eyes down in convergence; position in which visual axes converge and are both directed down.
Ad.—adduction.	E. f.—eyes front; position in which visual axes are parallel and both directed horizontally forward.
As.—astigmatism.	E. f'—eyes front in convergence; position in which visual axes converge and are directed horizontally forward.
As. C.—astigmatism corrected.	E. l.—eyes left; position (of sinistroversion) in which visual axes are parallel and both directed to the left.
As. h.—hypermetropic astigmatism.	E. l'—eyes left in convergence; position in which visual axes converge and are both directed to the left.
As. m.—myopic astigmatism.	E. r.—eyes right; position (of dextroversion) in which visual axes are parallel and are both directed to the right.
As. h. m.—mixed astigmatism with predominating hypermetropia.	E. r'—eyes right in convergence; position in which visual axes converge and are both directed to the right.
As. m. h.—mixed astigmatism with predominating myopia.	E. n.—eyes up; position (of sursumversion) in which visual axes are parallel and are both directed up.
At.—atropine, or under atropine.	
b.—base.	
b. d.—base down.	
b. i.—base in.	
b. o.—base out.	
b. u.—base up.	
C.—corrected, correction, or with correction.	
Conv., Cv.—convergence.	
D.—dioptré.	
D. or Di.—diplopia.	
Div.—divergence.	
D'—diplopia in accommodation.	
D"—diplopia with the red glass.	
D||—homonymous diplopia.	
DX—crossed diplopia.	
D. v.—vertical diplopia.	
D. L.—left diplopia; vertical diplopia with the image seen by left eye below.	
D. R.—right diplopia; vertical diplopia with image seen by right eye below.	
E.—eye.	

E. u'—eyes up in convergence; position in which visual axes converge and are both directed up.	Rf. C.—refraction-correction, or with refraction corrected.
Exc.—excursion.	R. g.—red glass.
Exc. T.—excursion test.	R. H.—right hyperphoria.*
Exc. T'—excursion test in accommodation.	S—esophoria.†
H.—hyperphoria.*	S'—esophoria in accommodation.
H'—hyperphoria in accommodation.	Sc.—behind screen eyes move.
H. C.—hyperphoria corrected or correction of hyperphoria.	Sd.—sursumduction.
Hm.—hypermetropia.	Sd. L.—left sursumduction.
Hm. C.—hypermetropia corrected or hypermetropia-correction.	Sd. R.—right sursumduction.
Ins.—insufficiency.	T.—tension.
Ins'—insufficiency in accommodation.	T. n.—normal tension.
L.—left.	Ten.—tenotomy.
L. E.—left eye.	Unc.—uncorrected.
L. H.—left hyperphoria.*	V.—vision.
M.—myopia.	V. M.—monocular vision.
M. C.—myopia corrected, or myopia-correction.	V. S.—single vision.
n.—normal.	V. S'—single vision in convergence.
Op.—ophthalmoscope.	VV.—binocular vision.
P.—parallax.	v.—vertical.
p.—prism; near point.	X—crossed; exophoria.†
P. lat.—lateral parallax.	X'—exophoria in accommodation.
P. L.—left parallax; image moves down when left eye is uncovered.	||—homonymous.
P. R.—right parallax; image moves down when right eye is uncovered.	<—less than; after a number, denotes an indefinite amount more than this number.*
P. v.—vertical parallax.	<<—growing steadily less than.
P.X—crossed parallax.	>—more than; after a number, denotes an indefinite amount less this number.
P||—homonymous parallax.	>>—growing steadily greater than.
R.—right.	+—before a number or symbol, denotes positive; after a number, denotes this number plus a fraction less than one.*
r.—far point.	—before a number or symbol, denotes negative; after a number, denotes this number minus a fraction less than one.*
R. E.—right eye.	~—indefinite.
Rf.—refraction.	

The use of these abbreviations is illustrated by the tabular excerpt from my note-books, given on page 118, describing a case which I was permitted to examine through the courtesy of Dr. A. C. Palmer, of Norfolk, Va.

I lay some stress upon the form here employed, because it exhibits the proper order in which the tests should be made. In the columns headed "E. f." we have the record of the tests made in the "eyes-front" position, or that in which the eyes are in a state of equilibrium and in a condition least removed from the natural. The first column, headed "D., &c.," gives the result of an examination made without introducing any artificial element other than that due to the interposition of a red glass. The second and third columns show the record of the parallax and screen tests which are made simultaneously, and which, as before remarked, are to be performed before the prismatic tests for insufficiency. The latter are recorded in the fourth and fifth columns, the test for hyperphoria being made first and that for lateral insufficiency afterward, according to the

* Symbol used by Dr. G. T. Stevens.

† Suggested by Dr. A. L. Ranney.

Date.	Ef.					Ef'.		ExcT.		ExcT'.	Ab.	Ad.	Sd. R L.	Remarks and treatment.
	D &c.	Sc.	P	H	Ins.	D' &c.	Ins' & H'.	Er.	El.					
May 24.....			||; no v.	0 or R ₃ .	X = 0-1°.		X'.	D'' ||.	D'' ||.		5°	23°		All tests Rf. Unc.
May 28.....			X & R* || & R†.	R, 1°.	X, 1°.			D'' || & R.	D'' || & R.		3°			*Rf. Unc. †Rf. C.
May 29.....	D''X & R	O	|| & R.	R, 1°.	X, ½°.		H' = 0 or R.	In both D''X < < Ef. and finally SV.			4** 6°+		1°, 1°	*Rf. Unc. †Rf. C.
June 7.....	D''X*† D'' = 0 or tendency to D''†.		|| & R†.	R† trace.	S = 1°†. S = 0-1°†.			In extreme position, D'' ||.			6°+			* with H. C.(= R. 1°). †Rf. C. ‡Rf. Unc. To use temporarily p. 1 ^a b. d. R. E.

principles laid down by Dr. Stevens. After these static tests have been performed there can be made, if desired, the tests with the axes in convergence. These are recorded under the heading "E. f'," the column "D' &c." noting the existence of diplopia or parallax on convergence, and the next column the degree of insufficiency and hyperphoria in accommodation. Then the excursion test is made and the result recorded in the column "E. r. and E. l.," and, if desired, the same test can be made with the axes in convergence, the record being placed in the column "Er' and El'." Last of all are placed the columns "Ab.," "Ad.," and "Sd.," in which the prismatic tests for the abduction, adduction, and sursumduction are entered. For the reasons before given, these last tests should be made after all the others.

Without going into a detail of explanation of all the entries, it will be sufficient to amplify one bearing the date of May 29th. Here the record shows that with the red glass there was crossed and right diplopia—that is, the image perceived by the right eye was below and to the left. No movements of the eyes were detected behind the screen, but the patient exhibited a homonymous and right parallax—that is, on removing the screen from the right eye, the candle-image moved down and to the right. The prismatic tests showed a right hyperphoria of 1° and an exophoria of ½°. In accommodation there was either no hyperphoria or a tendency to right hyperphoria. On performing the excursion test, both in the position of "eyes right" and "eyes left," the crossed diplopia with the red glass became progressively less, and finally changed to single vision. The abduction was 4° with the refraction uncorrected and 6° with the refraction corrected, and the right and left sursumduction were each 1°.

It will be seen that by employing a tabular form of this sort, which a physician can read at a glance, the results of a long series of observations and trials can be very speedily recorded and most succinctly displayed.

NOTE.—Owing to the lack of distinctive terms to express the different ideas involved, the nomenclature of the motor conditions of the eye is somewhat confused. Abduction, for example, is used to denote (a) the absolute power of movement inherent in the external rectus (*i. e.*, the total capacity for movement outward of the eye without any deduction for the opposing tension of the internal rectus), (b) the net actual capacity for movement outward of one eye (*i. e.*, the difference between the maximum power of movement of the external rectus and the minimum power of movement of the internal rectus), and (c) the net amount of outward movement of both eyes conjoined (*i. e.*, the degree by which they can diverge from each other). The last is properly designated by the term *diverging capacity* or *divergence* [G. T. Stevens]. For the second

the word *abduction* may properly be retained. For the first there is no word existing, and therefore I would propose as its equivalent the term *exokinesis*. The corresponding terms for the inward movements of the eye are *esokinesis*, *adduction*, and *convergence*; for the upward movements, *anokinesis*, *sursumvergence*, and *sursumduction*; and for the downward movements, *catokinesis*, *deorsumvergence*, and *deorsumduction*. Or, arranging in tabular form:

Capacity for movement.	In.	Out.	Up.	Down.
Absolute capacity of a single eye, supposing there to be no opposing tension.	Eso-kinesis.	Exo-kinesis.	Ano-kinesis.	Cato-kinesis.
Net capacity of single eye.	Adduction.	Abduction.	Sursumduction.	Deorsumduction.*
Capacity of separation of the eyes from each other.	Convergence.	Divergence.	Sursumvergence.	Deorsumvergence.*

There also seems to be required some word to express the general condition in which the various muscular tensions and movements are so adjusted that the visual axes are directed without difficulty at any desired point, or are maintained in parallelism during distant vision; the condition, in other words, in which the individual movements of each eye are properly performed and are properly co-ordinated with the movements of its fellow. This state of perfect dynamic adjustment, which corresponds to the ideal static condition of orthophoria, is appropriately designated as *isokinesis*. The contrary condition, in which one eye fails to move with the other so that there is difficulty in directing one or both visual axes at an object, may be termed *anisokinesis*.

FIVE CASES OF DISLOCATION OF THE HIP.†

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THE importance of traumatic dislocations of the hip joint and the remarkably constant and definite results obtained by experimental study of them upon the cadaver, along the lines indicated by Professor Bigelow, have combined, notwithstanding the comparative infrequency of their occurrence, to make the knowledge of their mode of production and pathology apparently complete, and to give the methods of reduction an exceptional definiteness of plan and execution. On the other hand, the injury so rarely comes under the observation of the practitioner, even of the hospital

* In practice, the terms deorsumduction and deorsumvergence are not employed, it being found more convenient to speak of the conditions opposed to right sursumduction and right sursumvergence as left sursumduction and left sursumvergence rather than as right deorsumduction and right deorsumvergence.

† Read before the New York Surgical Society, May 8, 1889.

surgeons of large cities, that our knowledge of it is, as a rule, rather theoretical than practical and personal, and it seems desirable that from time to time, as occasion serves, the subject should be reviewed, to the end that the scattered results of individual experience may be brought together to refresh our appreciation and perhaps to improve our treatment. The subject has been recently brought prominently to my mind by five cases that have come under my care during the last year, three of them within the last month, and it is to the record of these cases that I ask your attention. Three were dorsal, two obturator, dislocations.

CASE I.—F., forty-eight years old, a spare, muscular man, was brought to the Chambers Street Hospital, June 8, 1888, having just been knocked down and run over by a wagon. He had suffered a dorsal dislocation of the right hip and a compound intra-articular fracture of the left tibia and fibula. As he lay on his back, the right thigh lay in a posture of flexion, adduction, and inward rotation, its knee resting upon the front of the other thigh, about a hand's-breadth above the left knee. The right trochanter was very prominent, the muscles between it and the anterior superior spinous process of the ilium were raised in a longitudinal swelling, and the muscles of the posterior portion of the thigh were thickened by the shortening of the limb. But little motion could be communicated to the limb, except in the direction of further flexion, and even that was resisted and painful. There was an abrasion on the outer side of the upper part of the leg.

Ether was administered, and a number of attempts to reduce were made by flexing the limb to or beyond a right angle while preserving the adduction and inward rotation, then abducting, rotating outward, and lifting the limb by means of a bandage passed under the flexed knee and over the shoulders of the operator, but without success; the head was firmly fixed behind the acetabulum, and did not move forward in the least. I then sought to enlarge the opening in the capsule by circumduction and rotation, and repeated the effort, but still in vain. Finally, traction was made by Dr. Kimball, the house surgeon, in the direction of the axis of the limb as it lay in its first position of flexion and adduction, while I made pressure inward against the trochanter, and the bone slipped into place.

During the long confinement to bed made necessary by the fracture of the leg the patient recovered entirely from the injury to the hip.

CASE II.—J. S., twenty-two years of age, a large, muscular man, was admitted to the Chambers Street Hospital, February 3, 1889, with a dorsal dislocation of the right hip caused by the overturning of a cab which he was driving. The cab fell upon him, but he was unable to describe the attitude of the limb in the fall, or the direction in which the violence acted upon it. No recognizable bruises.

When I saw him, shortly after the accident, he manifested considerable shock, moaned constantly, and complained loudly whenever the limb was touched. He lay on his back, with the right thigh flexed and adducted, so that its knee lay upon the lower part of the other thigh. The right trochanter was very prominent, and the upper part of the thigh widened.

I drew him toward the foot of the bed until the pelvis projected beyond it, and then turned him upon his face; the left thigh was held horizontally by an assistant; the right thigh hung directly down, the knee flexed at a right angle, and I supported the ankle. After a few moments the muscles of the thigh began to relax, the patient complaining loudly all the time and asking for water. I shook the limb gently from side to side, and, when the muscles appeared to be freely relaxed, gave

a slight push downward with my fingers at the hollow of the knee, and the bone slipped into place with a snap.

CASE III.—G., fifty-six years of age, was admitted to Chambers Street Hospital, April 1, 1889, having just fallen down a hatchway and received a dorsal dislocation of the right hip and a comminuted fracture of the left patella. He presented no appearance of shock, and made no complaint of pain. As he lay on his back, the lower extremities were nearly parallel, the left being slightly abducted, the right rather more adducted and rotated inward. The pelvis was tilted about its transverse axis, so that the thighs were actually flexed upon it, although their full length rested upon the bed, and there was a well-marked anterior curve of the lumbar spine. The upper part of the right thigh presented the fullness and change of appearance noted in the two other cases; it could not be abducted.

He was drawn to the foot of the bed and turned upon his face, with the right thigh hanging down, as in the preceding case. He made no complaint, but kept the muscles of the thigh tense. After waiting two minutes, I placed a five-pound sand-bag upon the upper part of the leg, in the hollow of the knee, and asked him to describe his accident. As he talked the muscles could be seen to relax, and on the expiration of two minutes and a half I found, to my surprise, that the head of the bone had returned to its place without jar or sound. The limb could be freely abducted, everted, and extended. He was returned to bed, and a long side-splint applied.

As the fragments of the broken left patella showed no tendency to separate, that limb was simply secured upon a straight posterior splint.

He slept but little during the first two nights, and became very nervous, and finally so delirious that restraint was necessary. The urine was loaded with albumin. He grew better for a time, then worse, and died April 10th, without having shown any noticeable inflammatory reaction at the injured parts. The autopsy showed chronic parenchymatous nephritis, and pulmonary phthisis at both apices.

The rent in the capsule ran along the edge of the posterior part of the cartilaginous rim of the acetabulum for about two inches from the notch, and from its upper part a prolongation ran for a short distance parallel to and in close relations with the tendon of the obturator internus. On the anterior surface of the head of the femur was a broad, shallow contusion caused by contact after dislocation with a piece of bone of new formation developed in the soft parts close against the outer surface of the cartilaginous rim of the acetabulum adjoining the rent in the capsule. This specimen was shown to the society at the meeting of April 24th.

In respect of the symptoms, the first two cases presented the classical ones of flexion, adduction, and inward rotation, but in the third the two limbs lay almost parallel to each other and flat upon the bed; and yet in the latter, flexion of the joint was actually present, but was masked by the tilting of the pelvis; which was itself shown by the anterior curve of the lumbar portion of the spine. This lordosis was a feature better known, I think, to the surgeons of a generation ago than to those of the present time; at least, I have not found it noted in cases reported of late years, and one of the surgeons of this city, forty years ago, was accustomed to say that he could recognize a dislocation of the hip by passing his hand under the small of the back. It seems to be worth bearing in mind, to avoid being misled by an apparent absence of flexion.

Very few specimens of recent dislocation have been re-

ported, and the one obtained from the third case differs from most others in the position and shape of the rent in the capsule, which lies much closer than usual to the rim of the acetabulum. It is entirely unique in the bruise upon the anterior portion of the head of the femur—a bruise resembling that sometimes produced upon the head of the humerus by impact upon the anterior edge of the glenoid fossa in anterior dislocations. Its production in this case appears to have been due to the presence of the abnormal piece of bone developed behind the labrum cartilagineum.

The feature of most practical importance appears to me to be the method by which reduction was effected in the last two cases. It is one which I had once previously employed with success, and which is briefly referred to in Bigelow's monograph upon the hip. Its advantages are that it does not require anæsthetization or the exercise of any force. Although the opposition of the untorn portion of the capsule is an element of prime importance, that of the spasmodically contracted muscles is equally so, and this contraction, when not annulled by anæsthetization, has often proved sufficient to defeat well devised and executed measures to reduce by manipulation. Indeed, the possibility of completely relaxing the muscles by the aid of ether or chloroform has made the reduction of most recent dislocations an extremely simple and easy matter, and has greatly reduced the importance of considerations drawn from the position and influence of the capsule. But, even when the muscles are completely relaxed and the patient is lying upon his back, the surgeon has to overcome the opposition of the weight of the limb; he must not only move it successively into various positions, but he must also lift it, and this, if the patient is large, means the lifting of a weight of forty or fifty pounds while standing in a disadvantageous position and occupied with the necessary manipulations. It was after having become hot and tired in thus reducing a dislocation, one summer day, that the thought occurred to me of making the patient himself do this work, or rather of making the weight of the limb a coadjutor in the reduction instead of an opponent. When, three years ago, the first opportunity to try it came, the attempt succeeded in less than a minute, and the success of the same plan in the second and third cases here reported indicates that it is one likely to succeed in many cases, and that, as it can be employed without anæsthesia or special apparatus, it may save both patient and surgeon much inconvenience and delay. All the apparatus it requires is a support for the body of the patient sufficiently high above the ground to permit the thigh to hang down vertically while the leg is horizontal, and for this a couple of stout planks or the bottom of a farm wagon would be sufficient. Two of the three patients upon whom it was used complained greatly of feeling faint while they were lying prone, but I thought this was to be deemed an advantage, as favoring prompt relaxation of the muscles. The third patient was so entirely at his ease in this position that he was able to give a detailed account of the manner in which he received his injury.

The remaining two cases are *obturator dislocations* of the perineal variety—the only ones I have seen.

CASE IV.—Charles F., aged thirty-two, a large, muscular man, was admitted to the Chambers Street Hospital, April 11, 1889, with a dislocation of the left hip produced in the following manner: While he was reaching up to aid the descent of a box weighing about 1,000 pounds, it slipped and fell upon his back, flexing his trunk upon his thighs and crushing him to the floor; his right thigh was in front, its hip and knee flexed; the left thigh was widely abducted. I found him lying on his back in bed, with the left thigh flexed and abducted so that it stood out almost at right angles from the side of the body, the knee resting on a cushion and pillow, the leg flexed at a right angle with the thigh, and secured by a band at the ankle to prevent involuntary movements. The flexion and abduction of the thigh were each between 60° and 70° from the frontal and sagittal planes, respectively. The distance from the anterior superior spinous process of the ilium to the lower edge of the condyle of the femur was one centimetre and a half less on the injured than on the opposite side when the right thigh was placed as nearly as possible in the same position as the other. The right thigh could not be abducted quite as widely as the left was. The soft parts on the upper inner side of the injured thigh were prominent, and a rounded mass could be felt beginning one inch from the raphe of the perinæum, extending forward to the line of the adductor longus and backward nearly to a transverse line drawn through the anus. This was not depressible, contrasting strongly in this respect with the easy depressibility on the other thigh between the flexors of the leg arising from the tuber ischii and the adductors. The adductors were rather tense. The leg could not be freely extended at the knee, lacking 20°. The finger in the rectum, when pressed against the inner surface of the obturator internus covering the obturator foramen, could recognize rotatory movements communicated to the thigh. The region of the great trochanter was deeply depressed. Passive movements of the hip could not be made, except slight additional flexion and rotation.

The prominence of the head of the femur near the perinæum makes it proper, I think, to classify this case in the perineal variety of obturator dislocations.

After an unsuccessful attempt to reduce without anæsthesia by manipulation in the prone position, ether was administered; the previous attempt had made the head less prominent, and reduction was readily effected by increasing the flexion with outward rotation, making traction in the axis of the limb, adducting, and then lowering the limb beside the other. There was no recognizable jar or sound as the bone returned to its place.

The patient was kept in bed with a long side-splint for nearly two weeks, and was discharged May 2d.

CASE V.—William B., aged forty-three, a strongly built, muscular man, was admitted to the Chambers Street Hospital, April 22, 1889, with an obturator dislocation of the right hip. He was engaged in moving a heavy piece of machinery from a truck and was kneeling upon the ground on his right knee, beside its projecting end, when it overturned sidewise upon him, striking him first upon the left shoulder. As it was falling he threw his body backward and to the right to save his head, and it was probably during this movement, aided by the pressure upon his left shoulder, that the dislocation took place. His only contusions were at the left shoulder and on the inner side of the right knee, where it had been struck by the machinery as the limb rested on its outer side upon the ground. I was at the hospital when he was brought in by the ambulance.

The right thigh was flexed and widely abducted, so far that when the left thigh was placed as nearly as possible in a similar position, the distance between the knees was thirty inches. The position of the limb closely resembled that in the preced-

ing case. The upper adductor region was abnormally full, the trochanter depressed. The finger in the rectum, pressed against the obturator foramen, could indistinctly feel rotatory movements communicated to the thigh. Measurement from the anterior superior spine of the ilium to the knee showed shortening of two centimetres on the injured side. Adduction and extension painful and opposed.

After an unsuccessful attempt to reduce by manipulation in the prone position, ether was administered and reduction effected on the second attempt by the method employed in the preceding case, the head slipping into place with a distinct snap while the limb was being lowered.

The patient was kept in bed for twelve days with a long side-splint, and is now walking about the ward.

The mode of production in the first case, and probably also in the second, was wide abduction of the flexed thigh, and this explains the attitude of the dislocated limb, which differs strikingly in the extent of the abduction and flexion from that found in most obturator dislocations. In several reported cases of the common form the patients have been able to walk immediately after the accident, and in one the patient sought advice only because he found he could not adduct the limb freely. This wide abduction with flexion beyond the normal limit is constant in the perineal variety, and possibly it would be advisable to class all cases presenting that symptom in that variety, even if the head of the femur, as in my second case, should not noticeably impinge upon the perinæum.

The ease with which reduction can be effected is gratifying: flexion and outward rotation to disengage the head from the projecting rim of the acetabulum, traction in the axis of the limb to bring it opposite the cotyloid cavity, adduction and extension to turn it into the socket.

In both cases I tried, as in two of the dorsal dislocations, but unsuccessfully, to make the unsupported weight of the limb take the place of anaesthesia to relax the muscles. The patient was laid upon his face with an inclination toward the injured side, so that the abducted limb should hang vertically downward, and then, after the muscles had relaxed, I attempted the same manipulation which subsequently succeeded under ether. But in each case, and although in one the effort was prolonged for fifteen minutes, at the first movement of the limb the muscles contracted powerfully and the limb became fixed. It is true that both patients were exceptionally muscular and their strength was not diminished by shock. Possibly in feebler patients, or if the pelvis was so raised that the thigh would hang nearer to the abdomen, the attempt might succeed.

[Dr. Cole, of the house staff of the Chambers Street Hospital, has recently extended this method of obtaining muscular relaxation to the reduction of anterior dislocations of the shoulder, and it has proved successful in the three cases in which it has been tried. The arm is allowed to hang by the side, with the wrist lightly supported in the surgeon's hand and the elbow flexed at a right angle, and is gently shaken until the muscles are seen to relax; then a smart blow is struck downward with the hand at the fold of the elbow, and at the same time the arm is rotated outward. In each case the head of the humerus instantly returned to its socket.]

THE SURGICAL TREATMENT OF INVETERATE TIC DOULOUREUX.*

By ROBERT ABBE, M. D.

THE procedure to which I invite your attention is not a new one entirely, but so rarely advocated and yet so important that it impresses me as fully worthy of our time tonight.

Fortunately, cases of obstinate tic douloureux are not very common. When they become chronic there are few diseases that produce the agonizing distress of the constantly recurring shocks of acute pain in the cheek, jaw, and often half the head. It distracts the mind from work. It seizes the victim every few moments in the midst of conversation, forces tears and exclamations, produces salivary flow in excessive amount, prevents eating and sometimes sleeping, and brings him to the verge of despair. The time of its continuance is often measured by years, and, while it does not usually wreck the patient's physique, it exhausts his powers of endurance and work.

The store-house of medicinal remedies has been exhausted without reaching most of the cases, and it has not been until recent years that surgery has been able to rescue these sufferers.

In 1851 Dr. J. M. Carnochan operated in the first case for complete resection of the second branch of the fifth pair from the foramen rotundum to the infra-orbital foramen—with the removal of Meckel's ganglion—with complete success. This marked an era which has been proved by numerous other successful cases.

Prior to his publication in 1858 the simple subcutaneous section of the infra-orbital nerve in the cheek had had many ardent advocates and as many opponents, but no one dared nor cared to go back of this point to extract the nerve.

In the early part of the century Brodie speaks of the "notorious failure of simple nerve section in tic douloureux," and Velpeux, Stromeyer, and others speak of the momentary relief only that comes from it.

The weight of opinion had led to its practical abandonment. The discovery of the value of resection of portions of nerves in obstinate neuralgias led to the delicate operation of Langenbeck to remove a considerable portion of this nerve from the floor of the orbit. He isolated the bundle of nerves at the infra-orbital foramen in a small incision, and then passed a narrow curved bistoury into the outer side of the orbit below the lid, inward toward the posterior part an inch and a half, when, on turning it down, he cut the nerve in its groove and pulled it out by the infra-orbital end. This method prolongs the period of relief from pain, but recurrence follows.

Nothing so bold as Dr. Carnochan's operation had been previously tried. He operated as follows: A V-incision was first made below the eye, and from its apex a straight cut was extended downward through the entire cheek and lip half way between the nose and the corner of the mouth. The nerve ends were then gathered up at the foramen of exit and a trephine was applied to the front of the jaw, removing the front

* Read before the New York Clinical Society, May 24, 1889.

bony wall of the antrum. The roof of this cavity, being of thin bone, is readily broken in and the nerve drawn down from the orbital cavity. The back wall of the antrum is next broken away and removed, which exposes the sphenomaxillary fossa, which at this point is little more than half an inch deep. The nerve can now be cleaned away from its cellular surroundings and traced to the foramen rotundum, which is on a line with the inner wall of the antrum. Here it is readily cut square off. The posterior dental nerves and Meckel's ganglion connect in front of this, and thus all communication of the jaw with the nerve centers is cut off beyond the chance of repair.

This method he followed in all his patients. A few years later Dr. James R. Wood added several cases to the list and modified the operation only in not making the cut clear through the lip. Their work, as was usual in those days, was followed by what they called "healthy suppuration" and excellent healing, the antrum being syringed out if needed during the cure.

In 1879 Dr. F. S. Dennis, of this city, collected twenty-one cases of this operation ("N. Y. Med. Journal," June, 1879), and the report made a most admirable showing in favor of this operation so creditable to American surgery. The method is probably the best one for approaching the foramen rotundum, but other methods by Gerster, Luecke, and others of going from the side of the cheek, cutting the malar bone and the zygoma, and working in the narrow fossa from the side, have been tried. They are apt to be more bloody and perhaps less certain of exact feeling of the foramen.

The simplifying of dressings and attainment of primary union in the wounds now possible make certain valuable modifications of the operation practicable, which I have adopted in three cases. The best point is the small skin incision, which leaves a small scar. One inch and a quarter, either horizontally, vertically, or obliquely, over the infra-orbital foramen gives ample room for operating. I have found a gouge better than a trephine for penetrating the antrum, front and back. A narrow, forked, blunt instrument to straddle the nerve and assist in dragging it down into the antrum saves it from laceration.

No bleeding occurs that is not readily checked by sponge-pressure, even the sharp welling-up that occurs when the nerve and its companion vessel are cut. The dressing of the wound is of special importance, and the most perfect result is obtained by packing iodoform gauze lightly into the antrum, the end of a long strip being folded into a small pad to be placed deep in the wound against the foramen rotundum and the rest lightly added on top, and allowed to keep the wound apart on the cheek. After thirty-six or forty-eight hours this gauze is entirely removed and the wound sutured with care.

The anesthesia of the cheek allows of secondary suturing without pain to the patient. What little exudation may follow this dressing is retained and needs no drainage, primary union invariably resulting if the dressing is made with care. The depressed scar becomes flattened after a few weeks.

Of the three cases coming under my care in the last

year I have reported one only ("N. Y. Med. Journal," Feb. 16, 1889):

CASE I.—The man had a unique history, a rod piercing his neck and ascending to the base of the skull, where it injured the fifth nerve and produced hemianesthesia of his left half face, neck, and scalp. Tic-douloureux ensued in the second branch of the fifth and had continued unabated. He found no encouragement to hope for relief by operation, though he sought it not only here but in Germany. It was so severe that he attempted his life by shooting, but only wounded his chest.

Dr. Hammond treated him by medicines without relief, and referred him to me.

I operated, October 20, 1888, by the method just detailed. Meckel's ganglion was broken up by lacerating the tissues in which it was imbedded. The neuralgia was at once and permanently relieved. I have lately seen him, and he has had no return of pain, seven months after operation.

The man was undoubtedly a sufferer, and was scarcely ever seen without his handkerchief pressed into his cheek and brooding over his infirmity. Now his actions are entirely changed.

The next case was more severe in the character of the pain.

CASE II.—John T., aged sixty-five years, a man of rather heavy build and well preserved, who had followed the out-of-door life of a gardener, began, four years ago, to have neuralgic pain of the right upper jaw, first felt in the premolar teeth and radiating from a painful point on the cheek, near the ala nasi, up to the temple and back of the ear and through the jaw. It was paroxysmal at first. He had a tooth extracted one year later, and subsequently others, until all were removed one year ago. A temporary relief occurred for a fortnight, but for the past year pain has been incessant and unbearable. The slightest excitement, or biting on any substance, sucking in ever so little air or cold drink, touching the gum or the roof of the mouth, even talking, brings on an intense paroxysm of pain, causing him to dodge with his head as if to get away from it, and inducing a profuse flow of saliva and often of tears.

Even independent of irritation and occurring at night, the paroxysms come on with equal severity every few minutes, and sleep has only been by short naps. Stormy weather makes the pain worse. He has had to abandon his work. External applications have given a little relief, especially dilute spirit of chloroform, which he has applied so constantly, at night especially, that his cheek has been kept irritated almost to blistering. Internal medication has uniformly failed, and he has come to use opium, in one-grain doses, five times daily for a year or more.

In order to test aconitine, I referred him to Dr. Dana for a while before operating. He returned him to me in two weeks as a typical sufferer with tic douloureux adapted to surgical relief, and on which medicine was useless.

January 9, 1889.—I operated before a large class of physicians at the Post-graduate Hospital by Carnochan's method, through a small vertical incision an inch and a quarter in length. The superior maxillary bone was extraordinarily hard in this man, and I chiseled a circle, three quarters of an inch in diameter, with the foramen in the center.

I had some difficulty in breaking through the posterior wall of the antrum on account of the hardness of the bone, but finally drew the nerve well out of the canal and exposed it to the foramen rotundum, where I cut it, and broke up Meckel's ganglion as thoroughly as possible. The wound healed without suppuration, but he had considerable of his old pain for two or

three days. Anæsthesia of the cheek, however, showed the satisfactory removal of the nerve, and in less than three weeks his pain had absolutely gone, leaving him happier than for years. He stopped the use of opium at once. At present, four months and a half since the operation, he remains perfectly well, and nothing that he does can induce the slightest pain. The scar, which was indented, is coming to the surface and is of no importance.

CASE III.—Edward Condon, aged forty-five years. Patient has always been a healthy man until he was taken unaccountably with tic douloureux in the right upper jaw eleven years ago. He had all the teeth of the right upper jaw removed one after another with relief only for a few months. It returned and has continued with more or less severity for ten years past. The punctum dolorosum is near the ala nasi, but the agonizing spasmodic tic radiates through the jaw and the side of his head. For six months past it has been nearly constant, night as well as day. Sometimes he gets five or six hours' consecutive sleep, but if he is suddenly roused the pain is brought on. In eating, speaking, expectorating, breathing cold air, drinking, or jarring the body, spasms are sure to occur. In eating meals he has everything prepared finely chopped and arranged on his plate so that he devours it in the shortest possible time so as to hurry through the agony of it. The flow of saliva is very free and constant.

His treatment has been very varied, and for two years he has been cared for assiduously by Dr. Hammond, who referred him to me, hoping that surgery might do what medicine had failed in.

January 18, 1889.—I operated by Carnochan's method, before a large number of physicians, using a short (one-and-a-quarter-inch) incision.

The antrum was packed lightly with iodoform gauze.

20th.—Forty-eight hours later. Packing removed and the wound stitched with fine silk. Antrum closed; no drainage.

24th.—Fourth day. Primary union has occurred; stitches removed. The patient has been absolutely free from pain since the operation, for the first time so completely in eleven years.

At the present date, after four months and a half, he is still without pain and correspondingly happy.

These three cases afford corroborative proof of the value of deep nerve resection in facial neuralgia. The resection or section of the anterior portion of the infra-orbital is of little use, and, as Brodie and others found, practically worthless, producing at best in a few cases a temporary relief, and in most no relief at all.

Langenbeck's clever and attractive operation on the anterior portion of the nerve is a marked improvement over the simple section at the foramen.

In a most intractable case under Dr. Seguin's care in 1881 he did Langenbeck's delicate procedure with relief for some months, but, on the pain recurring—with all its former fury—he referred the man to Dr. Weir, who operated by Carnochan's method through the antrum, removing the posterior part of the nerve to the foramen rotundum and destroying Meckel's ganglion. The man remained perfectly cured when last seen, three years later.

The inferior dental nerve is much more easily removed. I operated on March 8th on a lady referred to me by Dr. W. C. Campbell, for neuralgia of the right inferior maxillary nerve of two years' duration. The paroxysms were like those of the cases narrated, and quite as distracting and discouraging. I made a one-inch incision only, parallel with

the edge of the jaw, and near its angle. On reaching the bone, I chiseled a long furrow so as to expose the nerve in its canal, and resected an inch of it. The wound closed by primary union. Anæsthesia of the anterior half of the lower lip ensued, but the pain continued for two or three days, when it entirely disappeared and has not returned.

A CASE OF FOREIGN BODY IN THE ORBIT.*

By JAMES P. MARSH, M. D.,

TROY, N. Y.

THE patient who is the subject of this report is thirty-two years old and a blacksmith by trade. On January 16, 1888, he was struck in the left eye by a chip, which flew off from the hammer he was using. However, at this time it was impossible to ascertain any facts appertaining to the size or weight of this fragment. He came to my office immediately after the reception of the injury, as he was bleeding profusely and was slightly shocked.

Examination of the injured eye revealed a lacerated wound of the conjunctiva, situated in the fold or sulcus formed by this membrane between the ball of the eye and the external canthus. The general contour of this wound was V-shaped. There was no corneal injury, but there existed a rent in the iris, extending obliquely from below upward, running across that part of the iris just below the pupil, but not entering it. I did not at once make an ophthalmoscopic examination, but washed out the conjunctival wound with an antiseptic solution, and proceeded to probe for a foreign body, which I thought must be in the orbit. After as careful and extensive probing as I deemed safe, I could not find anything. At this juncture a professional friend happened to call upon me, and, as he is one of our foremost surgeons, I asked him to try the probe. This he did as thoroughly and skillfully as it could be done, but with negative results. Together we made an ophthalmoscopic examination, finding that the retina had become detached over the greater portion of the external half of its attachment. The patient's vision was about an eighth of the field, and limited entirely to the extreme left side. The macula lutea was involved in the retinal detachment, and hence his remaining sight was of but little use to him. We again probed the wound, with negative results.

The injured eye was placed under the influence of atropine, and cold wet cloths, together with a light bandage, were applied. The patient was placed in a darkened room, and complete mental and bodily rest enjoined. After two days of this treatment the case passed into the hands of one of our leading specialists, who continued the same treatment that I had adopted. The wound also was probed several times without the foreign body being discovered, and finally we were forced to believe that it had in some unaccountable way passed out of the orbit. The conjunctival wound healed promptly. The patient possessed all the movements of the ball, and suffered neither pain nor discomfort, excepting as regarded his defective vision.

On May 2, 1889, the patient again presented himself at my office, and stated that, although there was no pain in his injured eye, something was growing between the lids on that side, and he wished to have it attended to. On examination of the original wound, it was found that it had reopened, and that the V-shaped conjunctival flap had become doubled over in such a

* Read before the fifth annual meeting of the Second District Branch of the New York State Medical Association, held at Saratoga Springs June 18, 1889.

way as to project between the lids at the external canthus. In the wound nothing appeared, but with a probe I could detect a hard body in apposition with the posterior wall of the eye. With a fixation forceps it could be seized and brought into sight at the bottom of the wound, but, when additional traction was applied, it would slip out from the grasp of the forceps and fall back out of sight. However, under cocaine, I enlarged the wound, and with two forceps succeeded in extracting this piece of steel. The specimen weighs fifty one grains. It measures five eighths of an inch in its longest diameter, nine sixteenths of an inch in its shortest, and is five sixteenths of an inch in thickness. An ophthalmoscopic examination of the eye, made a few days after the extraction of the foreign body, showed that the retina of almost the whole lower external quadrant and of the lower half of the upper external quadrant had been detached, and was now in a state of atrophy. This process involved the macula lutea. The field of vision remains about the same as we found it immediately after the reception of the injury. Although the patient is confident that his sight is improving, I fear that the original prognosis of almost complete loss of useful vision will be borne out.

From the dates given, it will be observed that this bit of steel was carried in the orbit, without the knowledge of the patient, for nearly sixteen months. Although it was probed for at least a dozen times by three different operators, at the time of the extraction there were no evidences of suppuration. This certainly speaks well for the antiseptic precautions employed. Evidently this foreign body was in an absolutely aseptic condition at the time of its entrance into the orbit. This condition, in my mind, was owing to such a degree of heat being generated in the hammer by the repeated blows which had been struck with it as to thoroughly destroy all microbes and spores which might have been adhering to it.

It will, perhaps, seem to some that I should back up this remarkable case by duly attested affidavits, but, not being a newspaper man, and as misery seeks company, I refer the curious to a case mentioned by Carter, wherein a portion of an iron hat-peg, three inches and three tenths in length, remained for twenty days in the orbit without the knowledge of the patient.

Generally speaking, any foreign body which becomes lodged in the orbit induces extensive cellulitis unless promptly removed, but the above-described case is a notable exception to the rule. Dr. Noyes justly remarks that foreign bodies in the orbit are at times very difficult of detection, and narrates a case in which a twig, an inch and an eighth long and as large as a No. 8 Theobald's lacrymal probe, became lodged in the orbit, and that, failing to find it with the probe, he used his little finger as an explorer, yet met with considerable difficulty in locating it. Speaking as regards my own case, I have come to think that I should have enlarged the conjunctival wound and explored the orbit with my little finger.

57 FOURTH STREET.

Iodized Glycerin.—"Dr. G. Hammond ('London Med. Recorder') points out that a mixture of tincture of iodine and glycerin produces a greater effect on the skin than the pure tincture, possibly because the glycerin tends to prevent the evaporation of the iodine, and thus enables the whole of its powers to be utilized."—*Druggists' Circular and Chemical Gazette.*

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SUMMER DIARRHOEA.

THE town of Leicester, England, has for many years had an unenviable prominence in the English bills of health as a "diarrhoeal town." It stands at the head, more frequently than any other English town, of the lists of mortality-rates by diarrhoeal disease. Local effort to discover and remove the causes of the trouble having failed, the Local Government Board voted to lend its aid, and designated its eminent inspector, Dr. Edward Ballard, to institute an inquiry into the existing conditions in Leicester and other diarrhoeal towns. Dr. Ballard's report, termed by himself "provisional," has recently appeared. As will be seen from a brief analysis, given below, his work has not been crowned with very great success; he has been content to give a summary of the best results obtained in England and Germany. His chief conclusion is that the temperature of the soil air is the key-note to the ætiology; for until the mean temperature of the soil at the depth of four feet has risen to 56° F., summer diarrhoea does not become prevalent. The quality of the soil also enters into the account; a town that is founded upon rock, with a thin superjacent soil, will not suffer so much from this disease as a town built upon a loose, porous soil capable of retaining much moisture. A soil containing organic matter from soakage of refuse will favor the occurrence of diarrhoea. So, too, overcrowding in tenements, the occupation of mothers in factories, bad water-supply, and bad sanitation generally will promote the disorder. Improper food does the same; but it is not in the food and drink, he thinks, whether they are proper or improper, that the real causation rests. It is something which, added to them, infects them, and thus the disease arises. Dr. Ballard points to the fact, frequently observed in this country regarding cholera infantum, that breast-fed infants are peculiarly exempt from fatal intestinal troubles when compared with those that are bottle-fed. He finds that the immunity vanishes exactly in proportion as artificial feeding takes the place of the use of breast milk, and that of all the forms of feeding, that with the bottle is the worst. Dr. Ballard believes that this extraneous agent is a micro-organism, not yet detected and isolated, whose habitat is ordinarily in the superficial soil, and which escapes into the atmosphere under certain seasonal influences and, attaching itself to the various food substances, especially to milk, may, by virtue of some of its life processes, produce in them a virulent chemical poison; and that this poisonous substance is the material cause of epidemic diarrhoea. His remedy for epidemic summer complaint is of the nature of a general admonition in favor of wholesome living, of pure drink and food, of a pure atmosphere, and of an avoidance of contaminations from in-

fectured persons, from soil, and from sewers. He advises the disinfection of the discharges, as in typhoid fever; also attention to the condition of the sewers by the health authorities.

This report is not in itself a great gain to the subject, since it is admittedly "provisional"; it is a report of progress. But it is valuable, since it commits the great Local Government Board to a continued pursuit of these vastly important inquiries. It means that the subject will be exhaustively studied by experts of the first rank. Dr. Klein, the well-known pathologist to the Brown Institution, was associated with Dr. Ballard, and made numerous autopsies and microscopical investigations. His report concerning the search for a micro-organism is negative. He examined the blood, tissues, and excreta, but could discover nothing that tallied with Dr. Ballard's theory. One fact in Dr. Klein's report has an important bearing on the prognosis of summer complaint—namely, almost invariably the kidneys were found inflamed, even in cases where the duration of the attack had been only a few hours. It will be well to have this discovery tested in this country, by those having opportunities so to do, during the present season. The avoidance of opiates, the use of aseptic foods—breast milk being one of them—and the resort to the seaside and mountain atmospheres of purity, have been suggested many times before; now they are weightily confirmed by Dr. Ballard.

THE THEORY OF SUPPURATION.

THE bacteriological theory of suppuration as it is at present accepted will doubtless admit of many modifications before it can reasonably be held to be perfect. Future researches may demonstrate the relative unimportance of the micrococcus as a pus-producing agent, and overthrow all the present theories, even as the theories of the past generation have been overthrown. Professor Paul Grawitz, of Greifswald (*"Archiv für pathologische Anatomie und Physiologie und für klinische Medicin,"* cxvi, 1), by proving that suppuration may be caused by the injection of irritating substances unaccompanied by any micrococcus or ptomaine, has perhaps taken a step in this direction. The experiments were performed mainly on dogs. With the most careful aseptic and antiseptic precautions, a certain quantity of oil of turpentine was injected subcutaneously, and the wound was closed with collodion. Over this a dressing was placed. A swelling with the external characteristics of an abscess was produced which, when opened, was found to contain a pus-like fluid smelling decidedly of turpentine and perfectly free from pus cocci.

This demonstration is interesting because it indicates a possible danger which may arise from the subcutaneous injection of irritant fluids even under the strictest aseptic precautions, but we do not see how it can have great weight regarding suppuration as it is commonly met with, because practically we do not find abscesses of this nature. It proves that substances exist, in addition to the ptomaines of the micrococci, which when introduced into the tissues will produce inflammation with the formation of pus, but it does not in the least intimate

that the ptomaines do not usually occupy the position held by the turpentine in the experiments as exciters of suppuration.

Grawitz also calls attention to the fact that the resisting power of the tissues of different genera of animals to the action of a given micro-organism differs widely, and insists that more attention should be paid to this when deductions regarding suppuration in man are drawn from observations on the lower animals. His remarks would be much more apposite if the question were, "What is the action of a certain micro-organism on the tissues of man?" But this is not the question. If we grant what he says to be true, still the fact remains that in all animals the destructive process known as suppuration is found accompanied by some micrococcus. That the particular micro-organism differs in the different genera does not preclude the possibility of arriving at a very close approximation to the truth regarding the action of the micro-organism constantly present in human pus, by careful observations of the actions of the various micro-organisms that are constant in similar conditions in various genera of the lower animals. Still, analogy is not always a safe guide, and Professor Grawitz may be right in his caution. His work bears the mark of much labor, and, though his results are decidedly theoretical rather than practical, they are worthy of notice.

MINOR PARAGRAPHS.

THE DIAGNOSIS OF THE SITUATION OF THE PLACENTA BY PALPATION.

ON the occasion of a paper being read by Dr. Herbert Spencer before the Obstetrical Society of London, at a meeting reported in the *"British Medical Journal,"* there took place a most interesting discussion on the possibility of diagnosing the position of the placenta by abdominal palpation. Dr. Spencer reported two cases of placenta situated in the upper segment and seven others of placenta prævia of which he had thus been able to determine the position. In three of the seven cases the exact site of the placenta on the front wall of the lower segment had been determined by abdominal palpation, and in two of these the placenta was felt at a time when it was impossible to feel it by the vagina. In the remaining four cases the placenta was shown by abdominal palpation to be absent from the front wall. Dr. Hicks and Dr. Barnes had also been able to locate the placenta by abdominal palpation, but Dr. Matthews Duncan, Dr. Boxall, and Dr. Champneys did not believe in the possibility of so doing. Dr. John Phillips, in a Cæsarean section, and Dr. William Duncan, in a Porro's operation, had taken every precaution to avoid the placenta, and yet had cut into it. They, moreover, believed that the presence of the abdominal wall would still further increase the difficulties. In Dr. Spencer's cases the placenta was "felt as an elastic mass of the consistence of a wetted bath sponge," with defined edges, obtruding itself between the hand and the foetal part, of which latter it interrupted the contour and lessened the shock of communicated movements. Barnes had found that, when the placenta was placed in the upper zones and in front, "the uterine wall was thickened and raised at the area of placental attachment, forming a hillock which rose above the level of the smooth surface of the uterus." That this position could further be proved by auscultation, as maintained by Barnes, was doubted by Champneys, Duncan, and Spencer. Dr. Spencer's comparison of the placenta to an elastic mass was felt to be in-

accurate by several of those present. Matthews Duncan had found that, whereas the expelled placenta was a thrombosed cake, the living one was felt to be ill-defined, soft, with a fretted, vesicular surface. Hermann also believed it to be an exception to find the placenta with defined edges. Barnes had seen one that enveloped the fetus like a sac, while Hicks had noted a case where the structure occupied the whole inner surface of the uterus.

POISONING WITH ACETANILIDE.

BEFORE the Baltimore Medical Association Dr. J. E. Gibbons recently read a paper on the results of a mistaken dispensing and administration of a one-drachm dose of acetanilide where five grains of antipyrine had been intended. The "Maryland Medical Journal" for July 6th contains a brief account of the symptoms, which were those of cardiac depression, cyanosis, and nausea. The treatment, which removed the threatening prostration, consisted of the use of tincture of belladonna and brandy. The headache, for which the dose was taken, was not relieved, and Dr. Gibbons holds that if the second dose had been repeated in two hours, as the mistaken directions ordered, death would have been the result. There was an error on the part of an apothecary, it is alleged, in writing out the copy of a prescription, causing the substitution of three drachms of acetanilide for half a drachm of antipyrine. It was a case of unauthorized "borrowing" of a prescription by a neuralgic person who had not been prescribed for by a physician. The antidotal doses of belladonna consisted of four drops of the tincture, every half-hour, for four hours, and at wider intervals afterward.

ASYLUM CHANGES IN CHICAGO.

THE outcome of the prolonged investigation into the asylum troubles at Chicago has been made public by the action of the County Board of Cook County. This action removes Dr. James G. Kiernan from the position of medical superintendent and appoints Dr. W. L. Noble as acting superintendent. It was in consequence of these troubles and investigations that one of the judges who have participated in them recorded his memorable expression about the malign influence of politics over asylum government, when he urged that the institution must be removed to some other site, "so that the sweet waters of charity shall not be polluted by politics."

THE ELECTRICAL TREATMENT OF UTERINE FIBROIDS.

DR. THOMAS KEITH, in the "British Medical Journal," pleads for the treatment of uterine tumors by electricity. His opinion is of value, being that of "one who was the first to lower to a minimum the mortality that so long followed abdominal surgery, and who by the best results yet obtained in hysterectomy—results that Dr. Playfair is pleased to call phenomenal—still retains the position." It is stated that more than a quarter of all women over fifty years of age have fibrous tumors, of which, if operated upon, one in every four or five dies, and of the survivors one tenth become insane. These tumors may in many instances never declare themselves during life, and only be discovered after death. Dr. Keith recalls two such cases in which, in spite of his remonstrance, operations were performed that resulted fatally. On the other hand, in but one case did harm result from the treatment by electricity. Hemorrhage had been brought about by exposure, as a result of which the patient died. Dr. Keith deduces from this the conclusion that, although great care must be used during the time of electrical

treatment, and with the negative electrode more especially, Apostoli's treatment as practiced by him should have a fair trial. Apostoli, as it is well known, uses the constant current, introducing his gold or platinum electrode into the uterus, the vaginal portion being inclosed in a celluloid sheath. His choice of electrode is influenced by the state of the patient. In hæmorrhagic or chronic leucorrhœal conditions the positive electrode is employed, while, when a denutritive effect is desired, as in subperitoneal fibroids, the negative is preferable. Between the external pole and the abdominal wall intervenes moist potter's clay inclosed in tarlatan. By means of this clay Apostoli professes to have entirely done away with the caustic effect of this pole, and thus to have been able to increase the strength of the current used from 50 to 250 milliampères. The results, as given in the thesis of Dr. Carlet (1884), are eminently favorable to the method. It would be well, however, to remember that many fibroids wither spontaneously. According to Sinéty, cases are by no means rare in which there have been fatty degeneration, suppuration, softening, and fragmentation, with subsequent elimination of fibrous tumors, quite independently of intervention, so that when electricity has been used it is as difficult to determine the advantages as the defects that are to be exclusively ascribed to the method.

SUICIDE AND LIFE INSURANCE.

THE Washington Life Insurance Company reports a decided tendency to increase of suicides in recent years. Shooting is the means selected in about half the cases. It is more frequent among the young than among the old, and on this account the company's *a priori* expectation had been in the direction of a decrease in this cause. This expectation has been balked, and the writer of the report goes so far as to say that the increase in recent years has not been purely a matter of accident, and that the decisions of the courts have not been such as to discourage suicide among the insured.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending July 30, 1889:

DISEASES.	Week ending July 23.		Week ending July 30.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	24	6	30	10
Scarlet fever.....	41	11	32	3
Cerebro-spinal meningitis....	3	3	4	4
Measles.....	67	5	40	5
Diphtheria.....	98	23	82	29

The Philadelphia "Times and Register."—We quote the following articles from advance sheets of the "Druggists' Circular and Chemical Gazette," for August, that have kindly been sent to us by that journal:

"Justifying a Fraud.—One of the most striking instances of how low a physician, medical editor, and professor can be debased by the improper influences of unprincipled manufacturers will be found in an article on page 278 of the Philadelphia 'Times and Register' for July 20, 1889. In this article, on 'A New View of a Certain Form of Substitution,' the editor in a labored argument tries to prove that the manufacturers of febriline, which in our May number we showed to be a most pronounced fraud, were justified in deceiving physicians in regard to its composition. Febriline was put on the market as a

tasteless preparation of quinine. Dr. Eccles showed that it had no quinine in it at all. The 'Times and Register' concludes its argument for fraud in the drug business in the following ingenious but dishonest way: 'Now, if it be pardonable to mystify a patient a little by a bit of clap-trap, and no physician can succeed who fails to array the mental forces of his patient on his side, is it not equally justifiable for the druggist to do the same to the physician, if the conditions are alike?' We do not think that the whole history of medical journalism could show an instance similar to this—one in which fraud and deception are advocated in so barefaced and bold a manner by one who poses as a medical teacher and writer, and who ought to know better than to so insult physicians and druggists. It would be interesting to know if the faculty and trustees of the Medico-chirurgical College of Philadelphia indorse this new movement, and if students at that college are to be taught that druggists and manufacturers are justified in using clap-trap and fraud to deceive physicians. It would also be interesting to know if the subscribers and advertisers who are patronizing the 'Times and Register' will approve of this 'new view' to a sufficient extent to continue their support of a journal that openly advocates fraud and deception. Quinidine does not cost as much as quinine, and neither is it worth as much therapeutically grain for grain. It can be bought at a little more than half the price of quinine, but this has nothing whatever to do with the case. It is merely a question of common honesty. The 'Times and Register' chooses to openly take the side of and advocate clap-trap and fraud in pharmacy, and there is no doubt that all respectable manufacturers and physicians will at once take immediate means to let the public know that they do not in any way whatever indorse such dishonest tricks, and that they will consequently refuse to patronize or have anything to do with any journal that advocates practices of that kind."

"*A Medical Journal Trust.*—It is currently rumored that a combination of prominent proprietary and patent medicine houses has been formed to furnish capital to and control what is proposed to be substantially a 'Medical Journal Trust.' These rumors have grown from the announcement sent out a short time ago when several medical journals in Philadelphia were consolidated under the name of the 'Times and Register.' It is said that this combination, which is known as the American Medical Press Association, proposes to gradually absorb all the medical journals of this country. The way this is to be accomplished is for the combination of manufacturers to withdraw their advertisements at the same time from one journal, and use every other means they can to cripple it, so that it can be bought in at a low rate. This plan is to be continued slowly and cautiously, so as to avoid publicity, until all of the journals are gradually taken in. Such a combination, if it should be completed and conducted in accordance with the peculiar honesty and principles that the 'Times and Register' is now advocating, as will be noticed in an article in this issue headed 'Justifying a Fraud,' would certainly make a spectacle that would bring everlasting disgrace on the medical profession of this country and on all who have had anything to do with so unprincipled an undertaking. On any kind of a basis such a 'medical journal trust' would give nostrum mongers a powerful weapon with which to humbug and deceive the medical profession; and its progress will most surely be opposed by all respectable journals, physicians, and druggists, and by the general public."

The American Association of Obstetricians and Gynecologists will hold its next annual meeting in Cincinnati, on Tuesday, Wednesday, and Thursday, September 17th, 18th, and

19th. No formal invitations will be issued to non-members, but the association invites such members of the profession, wherever resident, as may feel interested to attend the meeting and participate in the proceedings.

The College of Physicians and Surgeons of Baltimore has filled the vacancies created by the death of Dr. John S. Lynch and Dr. Oscar J. Coskery and the retirement of Dr. A. B. Arnold. Dr. Thomas S. Latimer has been transferred to the chair of principles and practice of medicine and clinical medicine; Dr. Charles F. Bevan to the chair of principles and practice of surgery and clinical surgery; Dr. J. W. Chambers to the chair of operative and clinical surgery; and Dr. George H. Rohé to the chair of obstetrics and hygiene. To fill the vacancies created by these transfers new appointments have been as follows: Dr. Henry Sewall, of the University of Michigan, to the professorship of physiology; Dr. George J. Preston to the professorship of anatomy, with the diseases of the nervous system as a clinical branch of instruction. Dr. N. G. Keirle has been elected lecturer on legal medicine; Dr. George Thomas, lecturer on diseases of the throat and chest; Dr. G. A. Liebig, Jr., of Johns Hopkins University, lecturer on medical electricity; and Dr. J. H. Branham, demonstrator of anatomy. Dr. L. F. Ankrim, Dr. Frank C. Bressler, and Dr. F. G. Moyer have been appointed assistant demonstrators, and Dr. R. G. Davis has been made prosector in anatomy.

The American Rhinological Association.—It is announced that the seventh annual meeting has been postponed to October 9th, 10th, and 11th, at which time it will be held in Chicago.

The International Pharmaceutical Congress.—The seventh meeting was to have been held in Milan this year, but it has been postponed to September, 1890.

The Medical Department of the University of Vermont, at Burlington, held its annual commencement on July 15th. The graduating class numbered fifty-eight. The annual address was delivered by the Hon. Edward J. Phelps.

The Mississippi Valley Medical Association.—A change of the time of meeting has been ordered. The association will meet at Evansville, Ind., on September 10th, 11th, and 12th.

The Medical Society of Pennsylvania will hold no meeting this year. On account of the great calamity at Johnstown, and for other reasons, it has been thought expedient to adjourn the convention until June 10, 1890.

Recent Deaths.—Dr. Theodore Dimon, of Auburn, N. Y., died on July 22d, aged seventy-two years. He was a graduate of the University of Pennsylvania in 1838, and for many years a permanent member in the State Medical Society. He was formerly superintendent of the asylum at Auburn, and surgeon to the Auburn prison. During the late war he was for two years a regimental surgeon. He was a forcible writer and speaker, and influential in sanitary and other public movements.

Dr. Isaac Lea died on July 25th, at Stapleton, N. Y., by his own hand. He was seventy-five years of age and broken in health, mentally as well as physically. He retired from practice about a year ago, after over thirty years of practice on Staten Island.

Dr. James W. Kerr, one of the oldest practitioners of York County, Pa., died on June 11th, after an illness of two weeks' duration. He was born in Lancaster County about seventy-six years ago.

Dr. Joshua Lewis Miner, of Wilkesbarre, Pa., died on July 27th, aged thirty-three years. He was a graduate in medicine

in 1881 from the University of Pennsylvania. He was a member of the Luzerne County Medical Society.

Dr. Schmelzkopf, the surgeon-in-chief of the Wissmann expedition into eastern Africa, was drowned at Zanzibar on or about July 28th.

The Astley Cooper Prize.—The subject announced for competition, under this prize, says the "Medical News," is "The Influence of Micro-organisms upon Inflammation." It is open to all comers, has a value of \$1,500, and will remain open until January 1, 1892. The prize will not be given for any competing essay that has more than one author. The essay must be in English or be accompanied by an English translation, and must be sent, before the date given above, to Guy's Hospital, London.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 21 to July 27, 1889:*

GARDNER, WILLIAM H., Major and Assistant Surgeon, by direction of the Secretary of War, is detailed to attend the encampment of the National Guard of the District of Columbia, at Fort Washington, Maryland, from July 22 to July 29, 1889, for the purpose of giving instructions to the medical officers and hospital corps in their respective duties. Par. 1, S. O. 164, A. G. O., July 18, 1889.

STEINMETZ, WILLIAM R., Captain and Assistant Surgeon, now at Baltimore, Md., on leave of absence on account of disability, by direction of the Secretary of War, will report in person to the commanding officer of the Watertown Arsenal, Massachusetts, for duty at that station, relieving Lieutenant-Colonel James C. McKee, Surgeon. Par. 3, S. O. 166, A. G. O., July 20, 1889.

MCKEE, JAMES C., Lieutenant-Colonel, on being relieved at the Watertown Arsenal, will repair to Philadelphia, Pa., and assume the duties of attending surgeon and examiner of recruits in that city. Par. 3, S. O. 166, A. G. O., July 20, 1889.

ROBINSON, SAMUEL Q., Captain and Assistant Surgeon, Fort Hamilton, New York Harbor, is hereby granted leave of absence for two weeks. Par. 4, S. O. 165, Headquarters Division of the Atlantic, July 22, 1889.

BALL, R. R., Lieutenant and Assistant Surgeon. Leave of absence granted in S. O. 87, Department of the Missouri, July 9th, is extended five days. Par. 1, S. O. 167, A. G. O., July 22, 1889.

BALL, ROBERT R., First Lieutenant and Assistant Surgeon. The extension of leave of absence granted in S. O. 167, July 22, 1889, from this office, is further extended ten days. Par. 23, S. O. 169, A. G. O., Washington, July 24, 1889.

By direction of the President, the State of Arkansas, embracing Little Rock Barracks, is transferred to the Department of the Missouri. G. O. 66, Headquarters of the Army, A. G. O., July 19, 1889.

Promotion.

EWING, CHARLES B., Assistant Surgeon, to be assistant surgeon with the rank of captain, after five years' service, in accordance with the act of June 23, 1874. July 5, 1889.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service from July 10, 1889, to July 20, 1889:*

VANSANT, JOHN, Surgeon. When relieved, to proceed to Mobile, Ala. July 11, 1889.

MEAD, F. W., Passed Assistant Surgeon. Relieved from duty as acting chief clerk and attending surgeon; ordered to St. Louis, Mo. July 11, 1889.

WILLIAMS, L. L., Passed Assistant Surgeon. Relieved from duty at Cape Charles Quarantine Station; ordered to Baltimore, Md. July 10, 1889.

KALLOCH, P. C., Passed Assistant Surgeon. Granted leave of absence for thirty days. July 15, 1889.

PETTUS, W. J., Assistant Surgeon. When relieved, to proceed to Marine Hospital, Boston, Mass., for duty. July 18, 1889.

WOODWARD, R. M., Assistant Surgeon. Granted leave of absence for thirty days. July 15, 1889.

VAUGHAN, G. T., Assistant Surgeon. Relieved from duty at Boston, Mass.; ordered to Norfolk, Va. July 18, 1889.

STONER, J. B., Assistant Surgeon. Granted leave of absence for twenty-five days. July 15, 1889.

GEDDINGS, H. D., Assistant Surgeon. Relieved from duty at Baltimore, Md.; ordered to Key West Quarantine Station. July 18, 1889.

WERTENBAKER, C. P., Assistant Surgeon. Relieved from duty at Norfolk; ordered to Galveston, Texas. July 18, 1889.

GROENEVELT, J. F., commissioned as Assistant Surgeon, July 11, 1889. Ordered to Gulf Quarantine Station for temporary duty. July 20, 1889.

Society Meetings for the Coming Week:

TUESDAY, August 6th: Hampden, Mass.. District Medical Society (Springfield).

Letters to the Editor.

FOREIGN BODIES IN THE EAR.

3211 LUCAS AVENUE, ST. LOUIS, July 25, 1889.

To the Editor of the New York Medical Journal:

SIR: Please allow me to correct an error in your issue of July 13th last, as it may mislead others. On page 41 of that issue, in the history of Case V, it is stated that a forty-eight-inch watch, which had been previously heard at a quarter of an inch distance, each ear, "was then heard an inch distant by each ear, a gain of 300 per cent. in hearing for the watch."

Since "the intensity of sound is inversely as the square of the distance of the sonorous body from the ear,"* we have in this case the following proportion:

Distance, $\frac{1}{4}$ inch : 1 inch, or 1 : 4 :: hearing 1 : 16, or 100 per cent. : 1,600 per cent., and the sentence should read "a gain of 1,500 per cent. in hearing for the watch."

You will greatly oblige me by publishing this correction.

ROBERT BARCLAY, M. D.

NIGHT TERRORS IN CHILDREN.

CORRECTIONVILLE, IOWA, July 24, 1889.

To the Editor of the New York Medical Journal:

SIR: In your journal of the 13th you mention an article by Dr. G. L. Ullman on "Night Terrors in Children," in which he condemns severe treatment. We have had a little experience of our own that would lead us to believe that sometimes a little harshness will be of great benefit.

Our little boy, of four years, has a great imagination and is very nervous; if allowed, he will in the day-time work himself into quite a state of terror. One night about eight months ago he awoke screaming "Rats! rats!" and was very much fright-

* Ganot's "Elements of Physics," E. Atkinson's translation, New York, 1872, p. 160.

ened. It was a long time before he would go to sleep, and next morning he refused to take his breakfast in the next room, as he was afraid of the rats in the bedroom. He was carefully taken into the bedroom and all parts were examined to give him to understand that there were no rats there. During the day his nervous state passed off, and he was as well as usual.

In a few nights he had another spell, which was worse than the first.

A visiting relative advised a spanking. She had been forced to do that with one of her own children years before.

Such treatment appeared unreasonable, and we believed it would only add reality to the terror.

A few evenings afterward, when I came home, I found the little fellow sobbing. In reply to my "What is the matter?" he said, "Ma-ma spanked me cause me see rats." He had a spell that had lasted nearly all the afternoon, and the rats refused to disappear until he had been spanked, and that was the last of the rats.

J. G. BILLER, M. D.

Proceedings of Societies.

NEW YORK SURGICAL SOCIETY.

Meeting of April 10, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

A Doubtful Case of Fracture of the Femur.—Dr. FRED. KAMMERER presented an elderly man who was much disabled in the left lower extremity, and of whom the following history was given: Eight weeks before, the patient had been walking along the street, on a level, and, as he thought, had slipped with the left foot, but without falling to the pavement. Immediately he felt a projecting piece of bone at the hip, and at the same time became completely unable to take another step. He pushed the bone back into position, but, being unable to walk, was taken to a store in the neighborhood, and from thence to a hospital. Little pain was felt, either at the time of the accident or afterward. The patient was under treatment at the hospital for six weeks. When the speaker first saw the patient he decided that the lameness was due to a fracture of the left femur. There was a slight inversion of the left lower limb when the patient lay on his back. On rotating the limb the radius of the curve described was less than on rotation of the other limb. With the patient lying on the right side and so relaxing the muscles, it was possible to get motion in a portion of bone corresponding to the trochanter without moving the remainder of the femur.

The slight amount of injury which had been suffered when the disability was acquired suggested that the patient might be suffering from locomotor ataxia. Moreover, he had found the patellar reflex absent, the pupils contracted and not reacting to light, and that the patient had for years suffered from lancinating pains in various parts of the body, and from *crises gastriques*. He would not give any opinion as to what changes might have occurred in the joint previous to the injury. The patient said he had been able to walk well up to that time. That would be rather in favor of the supposition that a fracture of the neck of the femur had occurred without former changes in the joint. It seemed safe to say that this was a lesion due to changes in the bone or joint occurring in locomotor ataxia. There was no cutaneous anæsthesia, but, as there had been very little pain at the time the fracture was sustained, it was possible that some of the deeper parts were anæsthetic. There was no inco-ordination.

The PRESIDENT appointed Dr. Lange, Dr. Briddon, and Dr. Pilcher a committee to examine and report on the condition present. Somewhat different opinions were arrived at. Dr. Briddon reported that the committee were not agreed as to whether there was present an absorption of the head and neck of the bone due to the trophic changes belonging to locomotor ataxia, or a fracture of the cervix occurring in a tabetic patient. Dr. Lange believed it a spontaneous fracture, probably intracapsular. There was great relaxation of the capsular ligament in consequence of neurotic changes.

Dr. PILCHER reported that he was not prepared to say that there was not a fracture, but it seemed to him that a fracture alone would not explain the condition present. The head of the bone was probably atrophic and partially absorbed. At the time of the crisis a spontaneous dislocation had probably occurred, being much favored by the relaxation of the ligaments about the joint.

Caries Sicca of the Upper Vertebræ.—Dr. J. A. WYETH presented a patient probably suffering from this affection, partly to get advice and partly on account of the unique history of the case. The patient was a young man of eighteen and well developed. He had been healthy until twelve or thirteen years old, when he had begun to suffer pain at the back of the neck, which had finally become so violent that he consulted a physician, under whose treatment it had seemed to go away entirely for the time. However, since then it had returned once or twice in slight attacks, and one severe attack two years previous, when the present deformity began to appear. There was no specific complication or tubercular taint. The family history was free from anything which could favor the occurrence of bone disease. He had had the patient under observation for a week, and had discovered no paralysis. He had thrust an aspirating needle into the broad convex swelling at the back of the neck, but only blood had come away. There was only slight stiffness of the neck with a small amount of backward displacement of two or three of the cervical vertebræ.

Sarcoma having easily been excluded, he had decided that the case was one of caries sicca of the upper cervical vertebræ, together with partial displacement. The needle had struck bone at no very great depth. There appeared to be no abnormal condition in the pharynx. At one time the patient had suffered from a spastic action of the left mastoid muscle, with the production of wryneck, and the motions of the neck were quite limited. The patient's friends had noticed an increasing shortening of the neck in front, and creasing of the skin, showing a forward projection of the head. The swelling had improved slightly under potassium iodide. But it was evidently no abscess or other inflammatory process.

Dr. A. G. GERSTER, having examined the pharynx with the finger, said that he found there a distinct backward curvature of the cervical vertebra. It was singular that so much loss of substance and deformity could occur without making pressure on the spinal cord.

Dr. V. P. GIBNEY thought that such a condition might exist for many years without making such pressure when its progress was so slow, since the nervous tissue was able to accommodate itself in time to much altered conditions. Several years ago Dr. Yale had shown several cases presenting a deformity in this same region—one which had lasted a number of years and was difficult of diagnosis. In several of these, lesions had been found after death similar to those that Dr. Wyeth had ascribed to the present case.

The PRESIDENT remarked that a similar case was presented in a man who had been in Bellevue Hospital for a number of years, at first as a patient and subsequently as a helper in the wards.

Some Disputed Points in the Pathology and Treatment of Perityphlitis.—Dr. R. J. HALL read a paper with this title. (To be published.)

Dr. R. F. WEIR referred to an opinion expressed by the late Dr. Sands, shortly before his death, to the effect that, while he yet believed that extraperitoneal cases generally occurred, he was convinced that the intraperitoneal variety was much more common than he at one time had thought it was. The speaker in one hundred autopsies, in as many cases of so-called perityphlitic abscesses, had found general suppurative peritonitis present in fifty-seven instances, circumscribed abscesses inside the peritoneal cavity in thirty-five cases (in thirteen of which general peritonitis had also existed), and extraperitoneal abscesses only four times; but in not one of these four instances had he found a minute perforation through the parietal peritoneal wall leading from the extraperitoneal abscess and surrounded by adhesive matter gluing together the structures contiguous at that point. The openings had been in every instance large and ragged, pointing to the abscess having existed for some time prior to the breaking down of the peritoneal wall by an ordinary necrotic process.

Abscesses had been described which burrowed up in the retroperitoneal tissue as far as the kidney, and Copeland had related one instance in which the abscess had burrowed up along the dorsal gutters not only to the kidney, but to the space between the liver and the diaphragm, and had simulated a pneumothorax in this region. The speaker did not believe that such cases had been truly described; according to his observations, they had more probably been cases of abscess within the peritoneal cavity. Already German anatomists had demonstrated the impossibility of reaching the cæcum without opening the peritoneal cavity. He could not understand the existence of extraperitoneal perityphlitic abscesses when our present anatomical knowledge was taken account of.

The speaker also wished to get opinions as to the usefulness of the aspirating needle in connection with this disease. He himself had found it of real value only where the friends of a patient objected to an operation, and the needle enabled one to withdraw pus, so as to convince them of the necessity of a radical operation. But failure to get pus did not prove that none was there. He had seen two cases where the needle had been used on the day before operation, and, when the abdomen had been opened, the track of the needle through the abdominal muscles had been marked by dark-brownish pus and the early stages of an inflammatory process. Such a case showed that there was some inconvenience and risk connected with aspiration.

In reply to a query from Dr. Lange as to whether any member could mention a case of successful operation after general peritonitis had begun, Dr. Weir said that he had operated within twenty-four hours after the occurrence of signs of perforation, when the peritonitis was believed to be rapidly spreading, and had a good recovery, but never when suppurative peritonitis had become general had he had recovery follow the operation. The question was a hard one to answer. Cases occurred where peritonitis apparently was general, and yet lateral laparotomy showed a loosely circumscribed abscess which could be discharged without further infection of the peritoneum. At other times a purulent condition might be encountered, and still he associated with a more or less extensive exudative or suppurative peritonitis. He considered, then, that there was a class of cases between the mild and the fulminant in which the result might turn either way—that is, the process might go on and end in death from general peritonitis, or it might become circumscribed and latent after acute symptoms of several hours' duration. However, in the latter event, the patient was liable

to another acute and perhaps fatal attack at any moment. Since fifty-seven per cent. of the autopsies made showed general suppurative peritonitis, and thirteen per cent. a circumscribed abscess with general peritonitis, general peritonitis therefore being present in seventy per cent. altogether, the early operation seemed to him called for. He believed that, if practiced within twenty-four or forty-eight hours, the early operation might save a number of those who now died.

There was a lack of experience as to the results of early operation—that is, operation in the first twenty-four hours. If it could be proved that it was really better to wait, and trust to the possibility of a circumscribed abscess being finally formed, he was ready to see the pendulum swing to the opposite side and have expectant treatment given the preference; but before that happened he wished we might have the result (which we now did not have) of prompt operation in at least as many as ten cases. He had recently had such an opportunity in the case of a young physician whom he had operated on fifteen hours after the fourth and severest recurrence of acute symptoms of an appendix perforation. He found a small grumous abscess within the peritoneal cavity at the top of the perforated appendix, and the adjacent coils of intestine were spread over with recent lymph, the whole process apparently in a fair way to spread far and wide. He cleaned out all the morbid material, the appendix (the lumen of which had been narrow) was tied off, and the wound was drained and packed with iodoform gauze. The diseased processes thereupon entirely ceased, and the patient had recovered without an unpleasant symptom.

The variations which occurred in the patency of the appendix probably had something to do with the severity of the peritonitis. Normal variations, as well as those resulting from pelvic disease, would account for this. Possibly also the range of motion or freedom of the appendix modified this. His conclusion was that, if the patient's condition would admit of it, in spreading peritonitis of appendical origin, early interference (or within twenty-four or forty-eight hours) would be found in a series of cases to afford the greatest saving of life. At the same time he felt with others that more experience was required to rightly decide the important question.

Dr. C. K. BRIDGON said, in reply to the statement of Dr. Weir, that Bardeleben and Luschka had denied the possibility of reaching the cæcum without opening the peritoneum, that the late Dr. Gurdon Buck, in a monograph on iliac abscess, had advised reaching the collection of pus through an incision exposing the tendon of the iliac muscles as it passes over the pubes and below Poupart's ligament, working one's way upward beneath the iliac fascia. Dr. Buck had done this on several occasions in cases that he regarded as those of abscesses due to tubercular ulceration of the cæcum occurring in phthisical subjects. Of course, in the normal condition of the parts, where, according to Treves, the cæcum was surrounded on all sides by peritoneum, the observations made by the German authors referred to by Dr. Weir were correct.

The speaker said that during the last six months he had operated in five cases of perityphlitic abscess, and in two of these cases it had been possible during the operation to demonstrate the intraperitoneal origin of the trouble.

One of these had occurred in a thin, attenuated boy, ten years old, who was admitted into the Presbyterian Hospital on the tenth day of the disease; there had been a large, fluctuating tumor, reaching at least four inches above the fold of the groin and nearly to the median line. After incising and evacuating a large amount of fetid pus, the retraction of the lips of the incision had permitted a very satisfactory inspection of the interior, and it could be seen that the roof of the cavity was formed by convolutions of intestine matted together by lymph.

The second case had been in an adult woman admitted to the service of the same hospital on the third day of the disease. The invasion, accompanied by chill and vomiting, had been acute in character; there had been pain and tenderness over the whole abdomen, but most severe in the right iliac region, where there was a sense of resistance, but no tumor. He had found it very difficult to determine whether it was a case of diffuse suppurative peritonitis or of circumscribed peritonitis, and had decided to make an exploratory incision. On exposing the peritonæum over the cæcum, the intestine could be seen moving freely under the serous lining of the abdominal wall. On opening the cavity of the peritonæum, the caput coli presented, coated with a layer of recent exudation, and adherent to neighboring coils of intestine. On lifting the caput there was an audible escape of gas which had a fæcal odor, and beneath its posterior surface was seen the appendix, not free, but bound firmly down, and on its exposed surface a perforation from which there was a slight escape of fæcal matter. The general cavity of the peritonæum was at once shut off with a tamponade of iodoform gauze, and the wound leading down to the perforation left open.

This patient died on the sixth day after the operation, and the speaker was firmly convinced that the exploration in this case had interfered with conservative processes by breaking up adhesions that were walling in the gangrenous appendix. He believed that the majority of these cases were intraperitoneal, and that where the inflammatory process was circumscribed it was better to wait several days before interfering; but that in cases in which no conservative or limiting process was set up, and where we had to deal with a diffuse suppurative peritonitis, laparotomy and toilet of the peritonæum was the best procedure.

Dr. McBUENEY said that his experience had completely satisfied him that all these cases were intraperitoneal. He had operated in the first thirty-six hours of the attack, and had been able to see how an abscess was forming within the peritoneal cavity. It became shut off by adhesions so promptly that it very soon became impossible to say whether it was inside or outside the abdominal cavity. So rapidly did adhesions form, and so soon did the process complete itself, that on the third or fourth day it would be easy to assume and maintain that the abscess was an extraperitoneal one, and this became more and more so as time went on. He himself had never seen a case of perityphlitic abscess formed entirely outside the peritoneal cavity. He had recently seen a fine typical instance of the old extraperitoneal abscess. On the ninth day, as the tumor was large and fluctuating, he opened down upon it by a free incision. From the appearance presented by the interior of the abscess, one would not have said that it had ever communicated with the abdominal cavity. The patient rallied well from the operation, and by the sixth week the wound had closed—all but a small sinus that led down to the seat of the recent abscess, and this it had seemed to him best to leave alone. Shortly afterward, at a time when the patient was feeling quite well and eating regularly, he rolled over in the night somewhat suddenly, immediately felt a violent pain in the iliac region, shortly afterward had a large stool, passed into collapse, and died in twelve hours. At the autopsy the origin of the abscess was found to be intraperitoneal, and a wide opening communicated with the peritoneal cavity. The appendix was found open and ulcerated. It was evident that the adhesions, which for a time had separated the ruptured vermiform appendix from direct connection with the peritoneal cavity, had ruptured and allowed fæces to be poured into it.

As regarded treatment, one might well have to explain himself who took very positive ground on either side of the ques-

tion which had been raised. He had heard a certain practitioner remark that he had never seen a case of perityphlitis that did not end in recovery. This was evidently because he did not recognize the fatal cases. The speaker had seen good results follow both with and without operation. Some patients did get well, contrary to expectation, who really had inflammation of the appendix. This, however, was no ground on which to base a refusal to operate in certain cases. Some patients got partly well, but they remained in constant danger of a fresh outbreak until operated on. Sometimes a discharge of pus into the bowel took place after an illness of weeks or months, but the chances of this were too small to be depended on. On the contrary, we were bound to get rid of a source of general infection easily reached. The successes in the operation were now very numerous. It was not fair to say of any case of operation without recovery that if it had been left to its own course adhesions would have formed. Where septicæmia had not become established he would operate early, but he would not operate where the pus had penetrated through the whole cavity, and peritonitis was far advanced.

Dr. F. E. LANGE did not consider that a spreading of the inflammatory process contra-indicated operation. He had reported a number of cases where he had been obliged to make a counter-opening through the rectum into Douglas's space, and in which recovery had been obtained. It was not very uncommon for suppurative peritonitis to become localized after transient symptoms of general peritonitis. The whole question, so very important as it was, whether we should operate early or not, could not be decided one way or the other and laid out in a schematic way. The facts with which we had to deal were that a large proportion of patients would recover under expectant treatment; that a large majority of the cases in which operation had been resorted to were in the later stages of the disease, and that it was really very difficult to select the cases in which operation was to be done at once, and to recognize the cases where it was better to wait. All were essentially alike in being cases of perforative peritonitis, but the result to the patient would depend upon what became perforated, what was infected, what the malignancy and tendency to spread were, or what predispositions were given by the condition of the surrounding tissues. As these elements varied widely in different cases, it was impossible to lay down a rule which should be good in all cases. There were some cases in which early operation would be the immediate cause of death on account of collapse setting in. On the other hand, some patients had been saved by being operated on early. He himself was still in doubt in each acute and severe case that came under his care as to what he ought to do. He had had charge of a number of cases of perityphlitic abscess, and his impression concerning them, as a whole, was that they were like other abscesses in needing to be opened. The operation was comparatively simple and its prognosis good. He had never seen a case in which general peritonitis had become established where recovery had followed early operative interference. After relating the history of a case in which the appendix, which had been giving rise to a succession of severe attacks, was found outside the ascending colon, and another case which had been supposed to be ovarian disease only in which the operation had revealed the presence of a small abscess and a perforated appendix, besides the expected morbid changes, the speaker referred to a third case in which he had operated very early. The patient, a boy of three years, was attacked about five o'clock in the afternoon, and laparotomy was performed at one o'clock of the following day. He found a diffused peritonitis and a perforation of the appendix following ulceration. The patient died after three days. He had helped other operators in the performance of laparotomy early

in the course of acute attacks, and all the patients had died. He could not say as a matter of experience, though from a rational standpoint he must admit it, that it was a good thing to operate early. On the other hand, he had had cases where general peritonitis had been present, as if from a perforation, and had in time become localized, this being followed by the gathering of pus in various places, and opening, and the recovery of the patient. He believed that in just such cases as these an early operation might have spread the infection wider, or else have disturbed the wholesome efforts which nature was making to close in the damaging exudation by adhesions.

Dr. HALL said he regarded the early operation rather as the opening of an abscess to relieve tension and evacuate pus; for an abscess in which pus was once present was not so likely to cause the formation of adhesions as, directly, to break them down. He believed that adhesions formed during the period of inflammation chiefly, and before the beginning of suppuration.

Dr. LANGE thought this was not so. On the contrary, he believed that when perforation took place the escaped matters did not necessarily act on the whole general surface of the peritonæum, but that some coils of the intestines that were near became bound together by adhesions about the foreign matters and checked their further spread. He instanced a case in which ileus besides peritonitis had been present and the patient suffered from stercoraceous vomiting with local signs of suppurative peritonitis apparently due to a perforation. The patient was for a considerable time in a state of collapse, the fever was a marked one, and an operation was out of the question. He accordingly delayed any radical measures; in time there was a gathering of pus at different points, and the patient recovered. He was convinced that death would have followed an operation done during the acute stage of the disease in this case.

Dr. WEIR, Dr. GERSTER, and Dr. WYETH next spoke, after which Dr. LANGE instanced a case where, the patient being very far gone, at an early stage of the disease, very feeble and also corpulent, delay had been decided on in accordance with a consultation, in which different opinions had been held. He was satisfied that the patient's life had in this way been saved. On the second week an incision was made, and the patient in time recovered. He believed that in this successful case related by Dr. Weir, adhesions had formed by which the spread of the process had been stopped before it had gone beyond the power of the body to recover from or control.

Dr. GERSTER thought Dr. Hall's paper had shown that the opening of an abscess within the uninflamed peritoneal cavity was not so dangerous as had been formerly supposed; the escape of pus into the peritoneal cavity had been classed as equally dangerous with perforation, and unnecessary fear had restrained many surgeons from needed operations. Similar experiences had resulted in making gynæcologists much more confident than they had been about operating for pyosalpinx. It had been found that rupture and the escape of pus from a pyosalpinx during operation was comparatively harmless. He considered that if the peritonæum was properly protected, the operation for perityphilitic abscess might be said to have all the elements of safety.

Dr. WYETH called attention to those cases of general peritonitis which were supposed to have originated from a perityphlitis where the consulting surgeon was called in at so late a stage that no diagnosis was possible on account of the general swelling. He had operated in two cases in which a diagnosis of peritonitis had been made, and had found nothing whatever wrong with the appendix or cæcum. In one of these cases the peritonitis had followed obstruction, and in the other no cause could be found, although a large abscess in Douglas's *cul-de-sac* was discovered.

The PRESIDENT remarked that the opinion of a majority of those who had spoken on the question seemed to be in favor of the surgeon's waiting before operating until the formation of pus, and against the immediate operation as understood by some. Since some doubt had been expressed as to the possibility of the occurrence of really extraperitoneal abscesses, he would remind the meeting that such a case had been reported to the society by himself about a year ago, in which a small abscess had formed in the connective tissue opposite the junction of the cæcum and colon between the reflected layers of peritonæum. A small intraperitoneal abscess had also formed behind the cæcum, communicating with two openings in the appendix.

Abdominal Hysterectomy for Uterine Fibroids.—Dr. R. ABBE presented the uterus and appendages of a woman upon whom he had operated for this condition, complicated by a suppurative inflammation of the ovary and pyosalpinx. The ovary was of the size of an orange, and the whole mass, representing the uterus, its fibroids, and the diseased appendages, weighed two pounds. The uterine tissue had been removed complete, and the patient had made a good recovery.

Book Notices.

De l'hémiplégie dans quelques affections nerveuses (ataxie locomotrice progressive, sclérose en plaques, hystérie, paralysie agitante). Par Mlle. BLANQUE A. EDWARDS, Docteur en médecine de la Faculté de Paris, etc. Paris: Lecrosnier et Babé. Pp. 7 to 168. [Publications du "Progrès médical."]

THE study of a symptom under the different phases in which it presents itself is always very instructive, but when this symptom is hemiplegia, which is found in so many different diseases, which is often preventable, often capable of amelioration, but always deplorable when it is lasting, its study becomes of the highest importance.

Dr. Edwards, upon a basis of eighty-eight clinical histories of hemiplegia, of which the greater part emanated from that famous source of neurological teaching, the Salpêtrière, makes a good comparative study of this state as it is seen in the four diseases named in the title of her monograph. Her definition of the symptom in question is quite sufficient from a clinical point of view, though necessarily incomplete in an anatomical sense. "By *hemiplegia* is meant a unilateral motor paralysis characterized by functional impotence of the limbs of one side, affecting the upper limb more than the lower, or *vice versa*; accompanied or not by paralysis of the face on the same side, or on the opposite side (alternate paralysis), by paralysis of the muscles of the neck and eyes (conjugate deviation of the head and eyes toward the healthy side), and by paralysis of the tongue with deviation toward the healthy side; complicated or not by paralysis of sensibility, of the muscular sense, and of the special senses, by contractures, by abolition or exaggeration of the reflexes, by tremor, by athetosis, by paralysis of the faculty of language, spoken, seen, written, or heard (aphasia), by paralysis of the pharynx and of the larynx, or by paralysis or contracture of the sphincters."

Forty pages are devoted to clinical histories of hemiplegia occurring in locomotor ataxia and to personal observations and deductions therefrom.

Those histories show, among other things, the frequently short duration of the symptom in these cases. Many localizations of monoplegia and many instances of aphasia occurring in tabes are also shown to be often quite transitory, persisting,

like hemiplegia, only a few days sometimes. In the opinion of Debove and of Stecewitz, this transitory character of hemiplegia is evidence of its tabetic origin.

In the forty pages touching sclerosis multiplex disseminata there are eleven instructive histories of hemiplegia from various sources, some of which show that in this disease also the symptom may be transitory.

The chapter concerning hemiplegia in hysteria is perhaps the best one in the monograph, inasmuch as it sets forth in a striking manner the points of similarity and of dissimilarity of hemiplegia in this great neurosis and in real organic disease. The means of making a diagnosis are given, although not in the most systematic way, and the clinical histories with the author's comments impart a very good idea of hysteria in general.

On the whole, it is a collection of useful observations emanating from the greatest center of neuro-pathological teaching. We here meet again with the phrases and aphorisms of Charcot and his school, which constitute one of the best qualifications of the work.

Studies in Pathological Anatomy. By FRANCOIS DELAFIELD, M. D., Professor of Pathology and Practical Medicine, College of Physicians and Surgeons. Volume II. Part 3—Acute Bright's Disease. With Forty-two Plates. New York: William Wood & Co., 1888.

It is safe to say that a more valuable and suggestive paper than this has not been published for many years. For the first time something like a satisfactory classification of acute Bright's disease is proposed. The nomenclature adopted is perhaps a little obscure. The author describes first "acute exudative nephritis," by which is meant an inflammatory process with the exudation of the usual products of inflammation, and with the usual more or less complete destruction of the renal epithelia; second, "acute degeneration of the kidney," which is disease of the epithelia without other demonstrable change; third, "acute diffuse nephritis," in which, in addition to the changes of exudative nephritis, there are from the first "a growth of connective tissue in the stroma" and "a growth of the capsule cells of the Malpighian tuft." These latter features make a lesion necessarily permanent. To each of these forms the author assigns a separate clinical history.

It will be seen that the form called "acute degeneration" may or may not in different cases be regarded as "inflammatory." It is a truly "parenchymatous" lesion. There is no visible change save that in the epithelial elements. There is no exudation into the stroma. Although the epithelial degeneration may be regarded in some cases as an early stage of "inflammatory" disease, it is clear that in many others the process is entirely "degenerative." All quibbling over the definition of "inflammatory" aside, this fact remains: that post mortem we find kidneys showing lesion, and that such kidneys give rise to certain symptoms. These are often slight, but when very extensive degeneration occurs, severe or fatal illness may result.

In "exudative nephritis" there are lesions similar to those caused by inflammation in any part of the body. As in plenrisy, for example, there is an exudation of serum, fibrin, and white cells; so in the kidneys the same exudation is found. The latter organs having no cavity resembling that of the serous sacs, this exudation takes place into the stroma and tubules.

"Acute diffuse nephritis" gives rise to a similar exudation, but, in addition to this, the cells covering the capsules of Bowman proliferate. The lesion has another peculiarity, namely, that the changes are most marked in wedge-shaped areas having their apices directed toward the pelvis. This the author regards as the greatest of all the acute lesions. This also is the "glomerulo-nephritis" of many authors.

The illustrations are microphotographs or reproductions of drawings. The former are probably as good as can be made with existing lenses; the latter are beautiful.

Du lavage de la vessie sans sonde à l'aide de la pression atmosphérique: ses usages—son application au traitement des cystites douloureuses. Par le Docteur J. M. LAVAUX, ancien interne des hôpitaux de Paris, etc. Paris: G. Steinheil, 1888. Pp. 5 to 146.

The author of this work has, with some slight modifications, revived a method of irrigating the bladder which has never attracted special attention, though several attempts to establish its merits have previously been made.

The apparatus used by M. Lavaux consists of an ordinary hand irrigator and a conical hard-rubber "obturator" through the center of which runs a hole fitted by a hollow metallic mandril attached to the end of the tubing of the irrigator. The irrigator being placed at a height of from a metre and a half to two metres above the patient, the obturator is placed in the meatus, the mandril run through it, and the water turned on; the atmospheric pressure overcoming the resistance of the compressor urethræ muscle, the bladder is filled until a sense of fullness is felt, when the patient is allowed to empty the bladder in the natural way. The only novelty in this procedure is in the method of estimating and controlling the amount of pressure used. This is done by having mandrils of different calibers, the author using a series of from 1 to 6, the caliber ranging from 1 to 3 mm. in diameter. By taking the height of the irrigator and the caliber of the mandril the amount of pressure may be estimated. It is difficult to perceive how this possesses any advantage over simply elevating or depressing the irrigator, especially as it is impossible to estimate the amount of resistance to be encountered. The rest of the method is practically identical with that of the late Professor Uitzmann, so that the excellent results obtained by this author (details of which comprise a large portion of the work) are a matter of no surprise.

A Manual of Diseases of the Ear, for the Use of Students and Practitioners of Medicine. By ALBERT H. BUCK, M. D., Clinical Professor of the Diseases of the Ear in the College of Physicians and Surgeons, New York, etc. New York: William Wood & Co., 1889. Pp. ix-420. [Price, \$2.50.]

This manual may be regarded as a revised and much improved edition of Dr. Buck's text-book, published in 1880. Some of the chapters have been but slightly altered, but others have been entirely rewritten, and much new matter has been added. Many of the illustrations are also new, and the present edition is much superior to the first. The book consists of fifteen chapters and an appendix, the latter containing an anatomical and physiological sketch of the ear.

In the chapter on diseases of the auricle we think the author errs in not drawing a sharper distinction between pure perichondritis and othæmatoma. In the chapter on diseases of the external auditory canal the author underestimates the frequency with which the operation of displacing the auricle forward, for the purpose of removing a foreign body from the canal, has been done, though it is a rare operation. In the chapters on the diagnosis and treatment of diseases of the middle ear we do not think sufficient importance is given to the necessity of a careful rhinoscopic examination. We think that such an examination should be done in every case. Masses of hypertrophied and adenoid tissue are almost always present in cases of middle-ear deafness associated with chronic naso-pharyngeal disease, and very often are the sole cause of the accompanying deafness. These cases should not be turned over by

the aurist to the rhinologist or laryngologist, as is too often the case. A knowledge of the operative procedures necessary in disease of the naso-pharyngeal region should form part of the equipment of every otologist, and skill in operating in the cavity comes only from practice and experience.

The chapter on diseases of the mastoid is admirable, and the cases cited are of great interest and value.

The chapter on syphilitic and tubercular disease of the deeper parts of the ear is very brief, but contains some points of interest.

Chapter XV, on disease of the labyrinth, is much too brief for the importance of the subject, but the author perhaps errs on the right side in saying that "there are good reasons for believing that the convenient designation 'disease of the labyrinth' can not rightfully be applied to many of the cases of aural disturbances which have been classified under this heading." The book closes with an index.

It is to be hoped that the present manual will have a larger circulation among practicing aurists than was possible for the first edition of the work.

Diseases and Injuries of the Ear; their Prevention and Cure.

By CHARLES HENRY BURNETT, A. M., M. D., Aural Surgeon to the Presbyterian Hospital, etc. Philadelphia: J. B. Lipincott & Co., 1889. Pp. 6-7 to 154. [Price, \$1.]

This little book forms one of the series of manuals on "Practical Lessons in Nursing," and was written for the purpose of "enabling many to avoid ear diseases by care," and to show the inexpert what to avoid in the treatment of ear diseases, and thus to escape the evils of improper treatment. It consists of three parts, divided into seven chapters. The first part, divided into two chapters, treats of the gross anatomy and the physiology of the ear. The second part, which treats of the common diseases and injuries of the ear, is divided into three chapters—one confined to the external ear, the second to the middle ear, and the third to the internal ear. The third part, consisting of two chapters, considers the very important subject of aural hygiene and the education of partially deaf children and that of the deaf and dumb. In such a small volume these various subjects must of necessity be very briefly treated of, but the style is clear, and what is said can be readily understood by the general reader, and certainly answers the intention of the author. The value of the simplification of any branch of medical science for the benefit of the laity is, however, open to question.

Handbuch der physiologischen Optik. Von H. VON HELMHOLTZ.

Zweite ungearbeitete Auflage, mit zahlreichen in den Text eingedruckten Holzschnitten. Fünfte Lieferung. Hamburg und Leipzig: Leopold Voss, 1889. Pp. 321 to 400.

NEARLY TWO years have elapsed since the fourth fasciculus of the second edition of this great work made its appearance. The fifth fasciculus continues the subject of color-sensations, and much space is devoted to the geometric presentation of the color-system. Much new matter has been interpolated, particularly in the discussion upon the subject of principal colors. Pages 335 to 346 have been entirely rewritten, and much of the old matter has been left out. Pages 351 to 384 are almost entirely new matter, and contain several new illustrations. This fasciculus contains the consideration of the entire subject of composite colors, and is a monument of erudition and research. It is to be hoped that the remaining fasciculi will appear more promptly, and that we shall not be obliged to wait too long for the completion of the entire work. The labor already expended upon the parts that have appeared is sufficient evidence of the

thoroughness of the author in the matter of revision. The book when complete will practically be a new work on the science of physiological optics.

Lectures on the Errors of Refraction and their Correction with Glasses. Delivered at the New York Post graduate Medical School, with Illustrative Cases from Practice, both Private and Clinical. By FRANCIS VALK, M. D., Lecturer on Diseases of the Eye, New York Post-graduate Medical School, etc. New York and London: G. P. Putnam's Sons, 1889. Pp. xii-241. [Price, \$3.]

This is a well-printed volume of 241 pages, which is rather better supplied with illustrations than text-books of this kind usually are. The lectures are eleven in number, and the subjects embraced in them are the anatomy of the eye, refraction, emmetropia, hypermetropia, myopia, ophthalmoscopy, muscular asthenopia, astigmatism, retinoscopy, and presbyopia. The book is avowedly elementary, but is sufficiently clear to the student or general practitioner who feels enough interest in a comparatively abstruse subject to devote more attention to it than is usually possible in the ordinary college course. It is provided with a copy of Snellen's test-types and a fairly good index.

The Illustrated Optical Manual; or, Hand-book of Instructions for the Guidance of Surgeons in testing Quality and Range of Vision, and in distinguishing and dealing with Optical Defects in General. By Surgeon General Sir T. LONGMORE, C. B., F. R. C. S., Honorary Surgeon to the Queen, etc. Fourth Edition. Enlarged and illustrated by Seventy-four Figures from Drawings and Diagrams by Inspector-General Dr. MACDONALD, R. N., F. R. S., etc. London and New York: Longmans, Green, & Co., 1888. Pp. xxii-239. [Price, \$4.50.]

This is a most valuable manual for all surgeons of the army or navy who are called upon to test the quality and range of vision among soldiers or sailors, and in its peculiar scope we believe it to be the only manual of the kind in existence. It is divided into ten chapters, and is quite fully indexed.

The first chapter contains a mass of information, much of it not found in ordinary works on optics, and contains also directions for sight exercises at musketry instruction.

The second chapter considers the subject of errors of refraction, myopia, hypermetropia, and astigmatism, and their influence upon military service.

The third chapter is devoted to a discussion of the subjective and objective methods of examination employed in determining the refraction, particular attention being given to ophthalmoscopy and keratoscopy.

The fourth chapter is entirely taken up with a consideration of the power of accommodation of the eye, including presbyopia.

The fifth chapter is devoted to a consideration of impaired vision connected with strabismus, but, inasmuch as the author goes into the theory of strabismus and a description of the various kinds of squint, the chapter is much too brief for any proper presentation of the subject. The same remark may apply to the sixth chapter, in which color-blindness is considered.

The seventh chapter, on visual acuteness and particular varieties of weak and impaired vision, is very good, though it seems unnecessary to coin a new word, "nephelopia," to signify an impairment of vision due to some opacity of the media of the eye.

The ninth and tenth chapters are of peculiar interest to army surgeons. Here we find a very full consideration of the power of sight required for recruits, with a description of the test-

dots employed for testing it; and a description of the manner of conducting the visual examination of recruits and soldiers, together with an account of the qualities of sight which determine the selection of officers and men for the army, navy, and Indian Government service.

The tenth chapter is practically an appendix, which contains extracts from musketry and other regulations concerning eyesight which affect medical officers.

The book is well written in a plain, readable style, and is sufficiently illustrated for the purpose, and we commend it to the careful perusal of all army surgeons and to every ophthalmic surgeon who wishes to know everything in his specialty.

BOOKS AND PAMPHLETS RECEIVED.

A Treatise on Surgery, its Principles and Practice. By T. Holmes, M. A. Cantab., Consulting Surgeon to St. George's Hospital, etc. With Four Hundred and Twenty-eight Illustrations. Fifth Edition. Edited by T. Pickering Pick, Surgeon to and Lecturer on Surgery at St. George's Hospital, etc. Philadelphia: Lea Brothers & Co., 1889. Pp. xxiii-33 to 1008. [Price, \$6.]

The Physiology of the Domestic Animals. A Text-book for Veterinary and Medical Students and Practitioners. By Robert Meade Smith, A. M., M. D., Professor of Comparative Physiology in the University of Pennsylvania, etc. With over Four Hundred Illustrations. Philadelphia and London: F. A. Davis, 1889. Pp. xiii-938. [Price, \$6.]

Diseases of Women: A Manual of Non-surgical Gynæcology designed especially for the Use of Students and General Practitioners. By F. H. Davenport, A. B., M. D., Assistant in Gynæcology, Harvard Medical School, etc. With Numerous Illustrations. Philadelphia: Lea Brothers & Co., 1889. Pp. xiv-25 to 317. [Price, \$1.50.]

Transactions of the New York State Medical Association, for the Year 1888. Volume V. Edited for the Association by Alfred Ludlow Carroll, M. D., of Richmond County. New York: J. H. Vail & Co., 1889.

Transactions of the Medical Society of the State of New York. For the Year 1889. Published by the Society.

Cancer and Cancerous Diseases. By Sir Spencer Wells, Bart., F. R. C. S. Cardiac Dyspnoea and Cardiac Asthma. By Dr. S. von Basch. The Influence of Menstruation and of the Pathological Condition of the Uterus in Cutaneous Diseases. By Dr. L. Grellety. Tension as met with in Surgical Practice; Inflammation of Bone; Cranial and Intracranial Injuries. By T. Bryant, F. R. C. S. Antisepsis and its Relation to Bacteriology. By Dr. J. Neudorfer. Volume III. Number 1. New York: William Wood and Company, 1889. ["Wood's Medical and Surgical Monographs."]

Therapeutische Notizen der deutschen Medizinal-Zeitung. Herausgeber, Dr. Julius Grosser, 1880-1889. Heft II. Bogen 6-10 (Gelenkentzündung—Pharyngitis). Berlin: Deutschen Medizinal-Zeitung, 1889. Pp. 81-160. [Preis, 1 Mark.]

The Treatment of Nævus by the Intra-injection of Alcohol. By Thomas H. Holgate, M. D. [Reprinted from the "Archives of Pædiatrics."]

Fifty-ninth Annual Report of the Inspectors of the State Penitentiary for the Eastern District of Pennsylvania.

Twenty-fifth Report of the Trustees of the City Hospital, Boston, with Reports of the Superintendent and Medical and Surgical Staff, Rules for Admissions and Discharges, Prospectus of Training-school for Nurses, etc., 1888.

A Manual of Instruction for giving Swedish Movement and Massage Treatment. By Professor Hartvig Nissen, Director of the Swedish Health Institute, Washington, D. C., etc. With Twenty-nine Original Wood Engravings. Philadelphia and London: F. A. Davis, 1889. Pp. vii-128. [Price, \$1.]

Atlas of Venereal and Skiu Diseases. Comprising Illustrations and Selections from the Plates of Professor M. Kaposi, of Vienna; Dr. J. Hutchinson, of London; Professor I. Neumann, of Vienna; Professors A. Fournier and A. Hardy, and Drs. Ricord, Cullerier, Besnier, and Vidal,

of Paris; Professor Leloir, of Lille; Dr. P. A. Morrow, of New York; Dr. E. L. Keyes, of New York; Dr. Fessenden N. Otis, of New York; Dr. J. Nevins Hyde, of Chicago; Dr. Henry G. Piffard, of New York; and others. With Original Text by Prince A. Morrow, A. M., M. D., etc. Fasciculi XIV and XV. New York: William Wood & Co., 1889.

The Old Hospital and other Papers. By D. B. St. John Roosa, M. D., LL. D. Second revised and enlarged Edition of "A Doctor's Suggestions." New York: William Wood & Company, 1889. Pp. 320.

A Clinical Study of Paraldehyde and Sulphonal. By C. M. Hay, M. D., Morris Plains, N. J. [Reprinted from the "American Journal of the Medical Sciences."]

A Year's Work in Abdominal Surgery. By Clinton Cushing, M. D., San Francisco, Cal. [Reprinted from the "Pacific Medical Journal."]

Proceedings of the Academy of Natural Sciences of Philadelphia. Part I. January-April, 1889.

Cerebral Localization in its Practical Relations. By Charles K. Mills, M. D., Philadelphia. (Read before the Congress of American Physicians and Surgeons, September 19, 1888.)

Reports on the Progress of Medicine.

CUTANEOUS AND VENEREAL DISEASES.

By GEORGE THOMAS JACKSON, M. D.

New Lanolin Ointments.—Dr. Stern, of Mannheim, has found to be useful three preparations with lanolin, which he names ("Therap. Monatshft.," February, 1889): (1) Sapolanolin; (2) lanolin wax-paste; and (3) fluid lanolin injection. The first is a mixture, usually, of two parts of green soap and two parts and a half of lanolin. With this he incorporates all the ordinary medicaments excepting salicylic acid. He has found it specially valuable in the treatment of infiltrated eczema, parasitic diseases, and seborrhœa with thick crusts. With the addition of 10 per cent. of white precipitate it renders excellent service in psoriasis capitis, usually clearing up the disease in from three to eight days' time, and needing only the application of an indifferent ointment to complete the cure. It never discolors the hair. The second preparation is exceedingly useful for an adhesive dressing, and is composed of forty parts each of yellow wax and lanolin and twenty parts of olive oil, melted together and shaken while cooling. It is of a bright-yellow color, and of the thickness of the wax used by the hair-dresser. It can be spread upon the skin, where it sticks. With this can be incorporated nearly all sorts of medicaments, only, when tar is added, a little more wax must be used. It is very useful in eczema of the face when oxide of zinc or boric acid is added to it. In squamous and vesicular eczema the following leaves little to be desired: Salicylic acid, in fine powder, 3 parts; olive oil, 17 parts; yellow wax and lanolin, each 40 parts. For the third preparation the basis is formed by lanolin, 25 parts; oil of almonds, 75 parts. To this can be added various medicaments, for instance: R Zinc sulphate, 0.5 per cent.; water, 4.5 per cent.; lanolin, 20 per cent.; and oil of almonds, 75 per cent.

Exfoliatio Areata Linguae.—This disease has been designated by many names, such as pityriasis of the tongue, chronic excoriation, desquamative syphilide, exfoliative marginate glossitis, and sundry other terms. Exfoliatio areata linguae seems to be the name given to it by Unna, and is the one adopted by Dr. Mibelli ("Giorn. ital. del. mal. ven.," 1888, xxiii, 383). The disease is very manifold in its appearance, so that a description that fits one case would not necessarily apply to another. From the observation of four personal cases the author would give the symptomatology as follows: Upon an otherwise perfectly healthy tongue there will appear red spots with smooth surfaces from which the upper layers of epithelium have evidently fallen. Around them will be a whitish ring which is more or less raised. These spots are continually changing their location in a most capricious manner from day to day, and even from hour to hour, and their appearance and exfoliation take place very rapidly. So they come and go, return-

ing again and again to places previously affected which have healed. There are no subjective phenomena, and the course of the disease is benign but most chronic. Its superficiality, its seat upon the tongue exclusively, the entire absence of ulceration and infiltration—these will suffice to distinguish it from aphthæ and from catarrhal ulceration. Leucoplakia buccalis differs from exfoliatio areata linguæ in the lesion being stationary. Syphilis of the tongue might offer some difficulty in diagnosis to a superficial observer. But the erosions of the tongue in early syphilis are more profound, often dry, sharply limited, fixed in their seat, and not surrounded by a raised whitish margin. In syphilis there is also an inflammatory tumefaction of the connective tissue of the filiform papillæ. In the exanthems, and in recovery from grave illnesses, transient exfoliation of the tongue takes place. But these exfoliations do not assume the typical "area" form, and disappear completely with the recovery from the disease with which they occur. Should the exfoliation continue for some time after recovery from the constitutional disease, the lesion will be single and of irregular, indefinite shape, will occupy a large part of the surface of the tongue, and will not migrate from place to place. The ætiology of the disease is obscure. Some have endeavored to establish a connection between it and menstruation, anæmia, dentition, and catarrhal conditions, but, with the exception of the first of these, the author has been unable to establish any such relation. It has no relation to syphilis. No treatment is necessary.

Ulerythema Ophryogenes is the latest creation of the fertile brain of Unna, or at least of his pupil, Taenzer ("Mntshft. f. prakt. Derm.," 1889, No. 5). In the course of three years Taenzer had the good fortune to observe six cases of this "hitherto undescribed disease of the skin." It begins in earliest childhood with a reddening of the skin of the eyebrows, a feature that continues throughout the disease, and afterward that of the face, the scalp, and, more rarely, the upper arm. The disease at first resembles lichen pilaris upon a reddened skin, but subsequently in some places, and in bad cases everywhere, the skin is highly inflamed, though the inflammation is superficial. Wherever the hairy parts are affected the growth of the hair is interfered with; they come through late and, as it were, in isolated bundles or groups, with here and there evidences of pustular inflammation of the follicles. The skin between the bundles of hair sinks in and becomes atrophied. Eventually total alopecia and atrophy of the scalp may result. In most cases the disease reaches only the first stage, the lichen pilaris stage, in some places, and the second stage in other places, and so remains throughout life. Three of his cases occurred in members of the same family, suggesting the question of heredity or infection from parasites. In one case the eyelids were affected, causing incurving of the lashes and conjunctivitis. Four of the patients had eczema in their younger days. The disease may be considered as presenting itself in two forms, a mild one and a severe one. In the mild form the disease begins on the outer part of the eyebrows, proceeds over the malar process, down in front of the ear, and to the side of the neck, ending upon the extensor surface of the upper arm, and seldom passing over upon the forearm. It begins as a hyperkeratosis with accompanying erythema; the follicles of the skin are occluded by corneous covers, the lanugo hairs and many of the stronger hairs are prevented from growing, and this gives rise to the appearance of a lichen pilaris. The severe form is marked by an implication of the inner part of the eyebrows, the upper lip and a few contiguous regions of the skin of the face, the scalp, and the extensor surfaces of the arms. The formation of cicatricial tissue is now active, always attacking the skin between the hairs, giving rise on the upper lip and eyebrows to a fine linear atrophic network, and on the scalp to a system of confluent bald rings, and ultimately complete baldness. It runs a slow course, with occasional outbreaks of suppurative follicular inflammation. The disease differs from lichen pilaris in its inflammatory character, its permanent erythema, and the final atrophy of the skin. Unna names affections of the skin attended with erythema and the formation of scars "*Ulerythema*" (meaning cicatrization with redness). In this group falls lupus erythematosus. Taenzer adds "*ophryogenes*," because the affection has a predilection for the eyebrows. In the treatment of the disease sulphur and resorcin are said to be efficient for the cure of the milder form, and the bettering of the more severe form. [We can not praise this new dermatological term on account of its

euphony; and we can not forbear protesting against the introduction of new terms into our already burdened nomenclature.]

The Treatment of Acne.—Dr. Isaac ("Berl. klin. Woch.," 1889, No. 3) believes that this disease is so far hereditary that in certain families there may exist an anatomical patulousness of the sebaceous glands, allowing of their clogging with extraneous particles. This clogging he regards as the chief cause of the disease. Beer, cheese, and coffee are regarded as specially harmful ingesta, and the latter is supposed to produce acne upon the same principle that bromine and iodine do. In the treatment, naphthol is recommended after Lassar's formula: Naphthol, 10 per cent.; precipitated sulphur, 50 per cent.; green soap and vaseline, each 20 per cent.; which is to be spread on the face and left on from half an hour to an hour. This is followed by some redness of the face and scaling. It is to be repeated till all the skin peels off. If too much reaction takes place the use of the paste is to be discontinued and the face powdered or anointed with a mild ointment. In obstinate cases the following is commended: Powdered chalk, 5 per cent.; β -naphthol, camphor, vaseline, each 10 per cent.; green soap, 15 per cent.; precipitated sulphur, 50 per cent. Resorcin also is excellent, and is used in twenty per cent. strength in Lassar's paste.

The Treatment of Squamous Eczema of the Back of the Hand.—This disease is believed by Unna ("Montshft. f. p. Derm.," 1889, No. 4) to be a seborrhœal form of eczema, in common with those forms of eczema known previously as "baker's itch," "bricklayer's itch," and the like. In most cases, he says, seborrhœal affection of other regions will be present at the same time—pityriasis capitis, an oily condition of the face, an intertriginous eczema, and so on. In the way of treatment it is recommended to cover the affected part with a thin layer of cotton batting soaked in the following solution: Resorcin and glycerin, each 10 parts; dilute alcohol, 180 parts. This is to be diluted with equal parts of water when used, and is to be applied in the evening. Over it is to be bound a large piece of gutta-percha tissue, so as to envelop the whole hand and keep the batting moist all night. In the morning a zinc-oxide paste, either with or without sulphur, tar, or resorcin, is to be applied, and renewed once or twice during the day. For washing the hands, the patient should use only warm water and avoid fatty soap. While caring for the eczema, the seborrhœal affection of other parts must be treated.

Herpes as an Infectious Disease.—The only form of herpes that heretofore has been generally recognized as infectious is that improperly named herpes tonsurans or circinatus—that is, ringworm. But it has been suggested from time to time that zoster (herpes zoster) might be an eruptive fever similar in many ways to the other exanthems. Now, Török ("Montshft. f. prakt. Derm.," 1889, viii, 54), who writes from Unna's clinic, and who, it is fair to surmise, represents Unna's idea in this matter, maintains for all varieties of herpes an infectious character. He cites the following series of cases: On November 14, 1888, a zoster patient with constitutional disturbance was admitted into Unna's wards. Toward the end of the month two women in the same ward had herpes labialis, with fever, headache, and weakness as prodromal symptoms. Then a boy and a girl broke out with herpes. Five weeks intervened between the first and last case, all being herpes vulgaris, excepting in the boy's case, where, besides the herpes facialis, there was a group of vesicles on the abdomen, just below the ribs, which might have been taken for a zoster. The author even indulges in fancies of a virus in doses of varying strength, the milder producing herpes febrilis, and the stronger zoster, and explains the usual single attack of the latter by the thorough saturation of the system by the virus. He also holds that zoster and herpes are only varieties of the same disease. [According to this, when zoster arises from injury, the part must have been inoculated with the virus at the time of the injury!]

Pityriasis Pilaris.—Dr. Boeck, of Christiania, gives us a study of this disease ("Montshft. f. p. Dermat.," 1889, viii, 97) founded upon a case. The disease occurs with special frequency and markedly developed upon the dorsal surfaces of the fingers, the hands, and forearms, which is probably due to the strongly developed lanugo hairs of these regions, whose root-sheaths are specially affected in this disease. Around each of the lanugo hairs is formed a solid corneous mass, which presses both down into the hair follicle and up above the level of the skin. The skin is usually of normal color, but very rough, and feeling

like "goose-skin" from contact with cold. It may be paler than normal. After a time hyperæmia may set in about the hair follicles and spread over the entire skin. If this takes place, the "goose-skin" appearance will be less marked. Besides the regions named, any part of the body may be affected, excepting the palms and soles, where there are no lanugo hairs. It occurs on the usual hairy portions of the body. It may begin also as red macules and patches with a smooth skin, but even then it will be easy to see evidences of corneous formations about the lanugo hairs. The whole body may be affected with this form of the disease. Usually the general health is not disturbed, but, if the disease becomes universal, there are malaise and nervousness. Itching may be present, and the lymphatic glands may swell. The disease may last indefinitely, and is subject to relapses. The hyperæmic cases, when they become general, bear a close resemblance to pityriasis rubra, and end by desquamation. For treatment, arsenic in large doses and cod-liver oil are recommended for internal administration, and Unna's "Zinkleim" locally.

Alopecia Areata following an Operation on the Neck.—In the light of Max Joseph's experiments in producing alopecia areata by cutting out the second cervical ganglia in cats, the report by Pontoppidan ("Monatshft. f. prkt. Derm.," 1889, viii, 51) of a case of the same disease occurring in a child following an operation in the neck is of special interest. The operation was for the removal of an enlarged cervical gland in the left carotid region. The external jugular vein was wounded in the operation so that a tampon had to be applied to check the bleeding. On the second day following the operation there was discovered a paralysis of the left sympathetic shown by ptosis and contracted pupil; there were also choreic movements of the left arm during sleep. Three weeks after the operation, when the bandages were first removed, there were discovered a number of symmetrical spots of alopecia areata. These subsequently increased in size till the occipital region was entirely bald, the area being bounded above by a sharp horizontal line running from the crown of the head forward around the head so that there was only a strip of hair on the temples before the ear, and only a narrow line of hair on the neck. This distribution corresponded to the regions supplied by the occipitalis major and minor, and by the posterior branches of the auricularis magnus. In this case there was a nerve injury in a region corresponding to that operated on by Joseph, and the case is instructive as showing the nervous origin of some cases, at least, of alopecia areata.

The Pathogenesis of Alopecia Areata.—This vexed question is once again discussed; this time by Mibelli ("Giorn. ital. del. mal. ven.," 1888, xxiii, 416). He shows how little dependence can be put upon the results of the microscopic investigations into the pathology of the affection thus far made, as the findings of the most able of the investigators do not agree among themselves as to either the parasite or the lesion of the hair. Experimentally, it has not been possible to convey the disease directly from man to man, or from man to animal; and the results obtained by section of nerves are of uncertain value. Joseph's experiments in the production of hair-fall by resection of the second cervical nerve led Mibelli to a series of investigations in this direction. In the first series, in 1887, he obtained in three cats a fall of hair in circumscribed areas by following Joseph's method, which was evidently due to nervous influence. A second series of experiments led him to uncertain conclusions, so he undertook a third series. His subjects were cats, as he found that they were the easiest to operate upon, and full-grown ones were preferred. The operations were done under chloroform. An account of fifteen out of thirty experiments is given. Microscopical examination of pieces of sound skin as well as skin from which the hair had fallen, both taken from the same animal, showed, in two cases, no difference in structure except the absence of hair from the bald places. In no case were changes found sufficient to justify a diagnosis of atrophy of the hair follicle or papilla. In one animal there was a marked alteration of the epidermis from the bald patch, the rete being notably swollen, having many cells with circumnuclear dropsy, the interspinous spaces being much dilated. In numerous places there were appearances similar to those presented by vesicles in rapidly spreading dermatitis or acute eczema. As to the results of the experiments upon the hair-fall, one of the most striking was the disparity of the effects obtained. In some animals extirpation of the

second cervical ganglion produced a fall of hair in circumscribed areas, both in the region of distribution of the cutaneous branches of the affected nerves (six cases) and also in parts more or less distant (three cases). In other animals the same operation was followed by hair-fall from regions outside of those supplied by the nerve operated upon (four cases). In yet other animals the operation was completely without result (five cases). The date of the hair-fall varied greatly; it occurred at any time from the ninth to the forty-seventh day after the operation. In most of the cases there was no change in the skin of the bald spot; in one case there was a superficial abrasion; in another there were soft crusts in the center of the bald spot; and in another a true eczema appeared along with the fall of the hair. These differences can not be explained by differences in the animals themselves or in the operations. The fact that the hair is regenerated after a time in the bald areas disproves Joseph's hypothesis that its fall is due to destruction of the trophic nerves going to the part, because when a peripheral nerve is separated from its ganglion it falls at once into degeneration, and can not be brought to life again; nor could the atrophied hair papillæ renew their functions. On account of such inflammatory alterations in the skin as he met with in his experiments, he is inclined to attribute the hair-fall to a lesion of nutrition of the skin, but not to a pure tropho-neurosis; rather an alteration in the vascular system. Inflammatory changes in the skin following the removal of the anterior lobes of the brain of a dog have been observed by Goltz. The same result has followed the cutting away of the occipital lobes. This has been noted by other experimenters. It is probable that excision of the second cervical ganglion may produce disturbance of the nerve centers, and this last produce the changes in the skin and the hair-fall. That the skin recovers shows that the disturbance is a passing, functional disorder of the nerve, interfering with the blood-supply to the affected part.

Piedra.—This, to us, rare disease has been studied by Dr. Juhel-Renay ("Annal. de dermat. et de syph.," 1888, ix, 777). The affected hairs when they are of a certain length appear like lanugo hairs, and curl up upon themselves. At unequal distances along the shaft there are little elevations, more readily perceptible to the touch than to the sight, of a dark chestnut color, and easily cut through with the scalpel. They resemble the nits of pediculi, but are very much smaller. The microscope shows them to form a more or less complete annular sheath to the hair, and they are often transparent enough to allow of the hair being seen through them. They appear greenish-yellow in glycerin. As many as twenty-three were found upon a hair two feet long. They are composed of an agglomeration of spores compacted together by the solidifying of a fatty substance. The spores are larger than those of the trichophyton, of nearly double the size, and of very varying shape. Through them run little staff-like columns. He has not been able to find mycelia in any of the cases examined. The parasite does not penetrate the hair, but is stuck on the surface. It bears no relation to trichophytosis or favus.

The Treatment of Favus with Oleate of Copper.—Mibelli recommends ("Boll. dei cult. del. sc. med.," 1888; "Giorn. ital. del. mal. ven.," etc., 1888, fasc. iii, p. 329) the daily rubbing into the scalp, deprived of crusts, of twenty-per-cent. oleate of copper, then covering the head with a light protective covering, and every two or three days washing with tincture of green soap. He has cured some cases by this method without epilating.

The Treatment of Tinea Tonsurans.—In 1885 Harrison, of Bristol, Eng., first advocated the treatment of this disease by means of two solutions, one of liquor potassæ and potass. iodide, and the other of mercuric chloride. This was said to yield good results, but was troublesome to use. Now ("Brit. Med. Jour.," 1889, i, 465) the same physician gives us a modified procedure as follows: Every night and morning there is to be rubbed into the diseased parts a little of an ointment composed of caustic potash, gr. ix; carbolic acid, gr. xxiv; lanolin and oil of cocoonut, each ʒ ss. The hair is not to be shaved, and a cure is to be looked for in from one to three months. During the treatment the whole head is to be anointed with an ointment composed of boric-acid ointment and eucalyptus ointment, each ʒ ij; oil of cloves, ʒ ss.; oil of cocoonut up to ʒ vj. The other children of the family are to have their heads anointed with the same ointment. Favus may be treated on the same plan.

Syringo-cystadenoma is the name given by Unna to a variety of tumor of the skin described by his assistant, Török, in the "Monatshefte für prakt. Dermat.," 1889, No. 3. The study is founded upon a case of some seventeen years' standing occurring upon the chest and abdomen of a man thirty-three years of age. It began in the neighborhood of the axilla and spread forward and downward. The eruption consisted of a number of small, round, hard, raised papules of the color of the skin. These papules tended to grow larger and to become of a blue-red color. It was unattended by subjective symptoms. Histological examination showed the tumors to consist of spaces, tubules, and epithelial nests, which in a more advanced stage changed into cysts and canals, on account of which the name cystadenoma was given. The build of these bodies, especially the configuration of the tubules, and the appearances of the epithelium of a portion of them, point to the sweat glands as their probable origin. It is probable, also, that they originate in embryonal sweat glands, as no connection could be found between them and glands already formed.

Xeroderma Pigmentosum.—A case of this rare cutaneous disease is reported by Brigidini and Marcacci in the "Giorn. ital. del. mal. veu. e della pelle," 1888, xxiii, 281. The patient was a girl, eight years old, in whom the disease began in the fourteenth month of her life, and without apparent cause. It was located upon the face, the neck, a part of the back, and the arms. The eruption consisted of a great number of macules of a black or brown color like lentigines, and of various shapes. Between these macules were sown, as it were, linear or stellate, more or less bright-red macules, which were true teleangeiectases. Upon the face were some corneous growths, and near the nose and upon the cheeks were slight ulcerations. The affected skin was dry and scaly. Various attempts at treatment were without effect. A list of forty-one monographs and journal articles is appended to the article, which will be useful to any one studying the subject.

The Treatment of Sarcoma Cutis.—Funk, of Warschau, at the close of a clinical study of sarcoma ("Montshft. f. prakt. Derm.," 1889, Nos. 1 and 2), recommends arsenic energetically administered in the treatment of multiple sarcomata. When the tumor is solitary, it should be excised. When ulceration has taken place, a ten-per-cent. iodoform ointment will render good service.

Purpura and Malignant Growths.—Dr. Harris, of Manchester, reports ("Med. Chron.," Feb., 1889) some interesting cases of hæmorrhages into the skin and mucous membranes taking place in connection with sarcomatous growths occurring in various parts of the body, and explains their occurrence upon the theory that they are due to emboli from the growth lodging in the capillaries of the skin.

Leprosy and its Contagiousness.—While living in Africa, Dr. Daubler visited what he calls "Robben" Island. This small island lies off the coast of South Africa, and contains eighty-four lepers, and it is upon these as well as those of South Africa that this study ("Monatsheft f. p. Dermat.," 1889, No. 3) is made. Fifty-eight of them were men. The men and women lived in different parts of the island. There were only three Europeans affected with the disease, and all of these were men. The first cases were brought to Africa by the Chinese. On the island the accommodations in the hospital are not sufficient to accommodate the lepers of the neighboring Cape Colony, and so there are many lepers at large spreading the disease. From Cape Colony leprosy is spreading into the heart of Africa. On the island most of the cases are of the tubercular variety, only a quarter of them showing the anæsthetic form. In two cases the evidence pointed conclusively to the inoculation of the disease by vaccination, the lymph having been taken from a person who subsequently died of leprosy. The resident physician, Dr. Wynne, has succeeded several times in inoculating mice and rabbits with anæsthetic leprosy.

Syphilitic Deposits in the Human Tongue followed by Epithelioma.—Dr. Wheeler reports ("Med. Press," Jan. 23, 1889) a case of epithelioma of the tongue of a man forty-eight years old. Ten years before its appearance he contracted syphilis that left a deposit in his tongue which had been brought nearly to a disappearance five times by anti-syphilitic treatment, but finally became epitheliomatous, as proved by microscopical examination.

Hereditary Syphilis.—A study by Neumann runs through Nos. 4 to 9 of the "Wien. klin. Wochenshft." for this year. It is founded upon

a hundred and twelve carefully observed cases. This valuable contribution is too long for abstracting, and we must content ourselves with giving the author's conclusions as follows: 1. A syphilitic mother may infect her unborn child in every period of her disease, whether she has acquired it before or after conception. 2. While it is possible for the fœtus to inherit syphilis when the mother becomes infected after conception, it is rare; and very rare when the infection takes place late in the period of pregnancy. 3. If the infection of the mother occurs after conception, the father at that time being syphilitic, the influence upon the child is intense, as it either dies *in utero* or is born with some specific manifestation. 4. When syphilis is acquired by the mother late in pregnancy, the child usually escapes. 5. When infection and conception occur at the same time, in half the cases the fœtus dies. Nevertheless, quite a large number of the children escape entirely, in spite of both the parents being syphilitic. This is contrary to the opinion generally entertained. 6. The further removed the time of infection is from the time of conception (antedates it), the better chance there is for the child, provided the mother undergoes an active course of treatment. 8. The best chance for the child is when the mother has acquired the disease late during the pregnancy, and the father was not syphilitic at the time of the conception. The poorest chance for the child is when conception and infection occur at the same time, or the father at the time of conception has recent syphilis. 9. A child may acquire syphilis from the father. 10. It is not advisable to bring on an abortion in a case of late infection of the mother. 11. Tertiary syphilis does not produce sterility in the woman. 12. A protracted mercurial treatment is favorable to the child. Of the hundred and twelve cases studied, in but forty-four were the children born alive, and most of these died soon after.

Syphilitic Reinfection.—Dr. Ducrey, of Naples, reports in the December number of the "Giornale italiano delle malattie veneree e della pelle" for 1888 a case of syphilitic reinfection in a woman forty-six years of age, married, and without children. She gave a clear history of her first attack of syphilis and of a subsequent infection with soft chancre acquired from her husband. Ten years after marriage, and some eleven or twelve years after primary infection, she had intense headache and an eruption of circumscribed nodules and pustules upon the scalp, which ulcerated and became serpiginous. At this time the husband contracted syphilis from another woman. His symptoms made the wife suspicious, and, experiencing discomfort in the genital region herself, she went with the husband to the clinic, and was found to have an initial lesion, inguinal gland enlargement, a macular syphilide over the body, and other signs of fresh infection. The course of the freshly acquired disease was a stormy one, with a great deal of constitutional disturbance, a general outbreak of pustular lesions, and intense osteoepic pains.

New Inventions, etc.

EXPRESSION IN THE TREATMENT OF TRACHOMA.*

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It is my pleasure in this paper to call your attention to a method employed in the treatment of chronic follicular trachoma which has found its way into few of the journals and none of the text-books, but which, in my opinion, takes the lead among the remedies employed against this intractable disease. This process is the expression or enucleation of the follicular contents.

The first reference to this subject which is to be found in literature occurs in Graefe's "Archiv für Ophthalmologie," 1883, in which Mandelstamm, a Russian oculist, speaks of the efficacy of squeezing, in the treatment of trachoma, by means of the thumbs. "The lid being everted and held by the thumb of the left hand, the nail of the right thumb is placed in the retrotarsal fold. The two thumbs are now

* Read before the Illinois State Medical Society, May 23, 1889.

pressed against one another, including the lid and part of the reflected mucous membrane, thereby squeezing out the follicular contents and breaking down their walls." This announcement of Mandelstamm's made little if any impression, and the idea might still have remained dormant but for an accidental discovery made by Dr. F. C. Hotz, of Chicago, two years before the appearance of the publication of Mandelstamm. He published his observation in the following words, in Knapp's "Archives of Ophthalmology," June, 1886: "At this time," he says, "an exceedingly nervous patient with follicular trachoma and acute pannus came under my care. A violent spasm of the orbicularis set in when I turned the upper eyelid, and, as I pushed the everted lid upward in order to obtain a better view of the retrotarsal portion, I observed that the contents of the numerous trachoma follicles were squeezed out by the pressure of the orbicularis, in the form of gelatinous plugs, and, by assisting this pressure a little with the thumb, I succeeded in thoroughly emptying all the follicles. The next day I was actually surprised by the remarkable improvement. All acute irritation was gone, the photophobia and the heavy pressure of the lids had disappeared, the eyes were opened without discomfort, and in a few weeks the patient was discharged as cured."

This article appealed so forcibly, as both rational and practical, that I was led to adopt the method at once, and have subjected it to three years of almost daily trial and in the various stages of trachoma.

To appreciate the indications for squeezing in the treatment of trachoma, it will be well to bear in mind the natural history of the disease. Though the lines are not closely drawn, in the course of the disease three overlapping stages may be recognized:

1. The inflammatory.
2. The follicular.
3. The cicatricial.

In the first the epithelial structures are principally affected and the enlargement of the papillæ has led to the term papillary hypertrophy.

In this stage, in my opinion, squeezing is contra-indicated. The inflammation is acute, and the treatment has not been found to shorten the disease. With the subsidence of the acute process, which may be shortened by scarification and astringents, one is able to observe the characteristic of the *second* stage.

The hypertrophied papillæ may be seen interspersed with the follicles, which, by their color and increasing prominence, lead to no possible mistake in the diagnosis. With the further progress of the disease they become the ruling factor of the process. They infiltrate the hypertrophied papillæ and may be seen in masses or folds corresponding to those of the conjunctiva. They may be more or less extensive, in one case being limited to a few follicles and in another omnipresent with the conjunctival area, resembling the ovary of a fish. Lying beneath the epithelial surface, they are by it protected against the irrational caustic treatment which has so often been seen to result in the deplorable destruction of the tarsal and retrotarsal mucous surface, resulting in ptosis, entropion, and blepharo-phimosis. The poisonous contents of these follicles, rather than the roughened surface, are to be held accountable for the recurrent ulcers of the cornea, which result from the corneal invasion of septic agents.

The presence of the follicles in the tissue stimulates the secretion of a protective exudate, the organization of which results in the cicatrization which characterizes the *third* stage.

So long as the follicles remain to excite irritation, the cicatrization continues. The *second* stage may thus be seen to lap over the *third*, which is often prolonged months or years by the presence of more or fewer follicles which, being situated deep in the tarsus or concealed in the retrotarsal fold, resist the efforts of nature or elude the vigilance of art. The curative method of nature is that of siege, and many cases of trachoma result in spontaneous recovery, but with a loss of a large portion of the mucous surface which has been transformed into cicatricial tissue. The *caustic* method of the past has imitated the method of nature and secured the end in a shorter time by artificially destroying the epithelium and hastening the cicatrization. This irrational procedure has been pushed still further by some of the prominent French surgeons, who have advocated the excision of the retrotarsal folds, maintaining that the disease is not cured until the whole area of trachoma development is destroyed.

The mycological development of the last decade has changed all this. After the primary stage of epithelial inflammation, the diseased germs infest the follicles, and the problem is, therefore, to remove them as they develop with the least possible destruction of the mucous membrane.

By mechanically squeezing the area, underlying which the follicles may be seen, the pressure causes a rupture of the surface permitting the extrusion of the follicular contents, and is followed by healing with no loss of tissue. In the secondary stage this may require repetition one or more times, because there are often numerous small follicles which are not sufficiently developed to permit of their removal. But if the case is seen in the cicatricial stage, when the battle of supremacy is being waged by the two contending forces, a single squeezing is often sufficient to reverse the balance of power and effect a permanent cure.

The method of effecting this deserves some comment.

The failure of Mandelstamm's suggestion to obtain recognition was probably due to its narrow limit of availability. Squeezing between the thumbs is not applicable to the lower lid, and is available in the treatment of the upper lid in only a small proportion of very chronic cases. Hotz, in his article, speaks of having used an old-fashioned iris forceps.

For the first two years of my experience with the method a curved clot forceps was employed, but so often was it found ineffectual in removing the concealed follicle that an attempt has been made to supply a need which it is believed exists.

In the construction of an efficient trachoma forceps three qualities have been deemed essential: First, that the shape should render every point of the conjunctival surface accessible; second, that sufficient strength should be possessed to express the follicular contents when occurring beneath the tarsus; third, that the terminal extremity should be of round or oval wire to prevent laceration of the mucous membrane, which is always delicate and often atrophied.



These requirements were communicated to George Tiemann & Co., who have produced this forceps, which has been found to meet the demand. Since receiving it a few months ago I have effected a cure in a number of chronic cases which had resisted treatment, in which the follicles were wholly inaccessible by means of the thumbs or any forceps in my possession. By means of this instrument it has been found possible to reach the commissural angles of the retrotarsal folds, the caruncle, and the plica semilunaris, and, besides, to remove the granulations from under the bulbar conjunctiva though extending to the limbus corneæ.

The hæmorrhage in these operations is generally slight and believed to exert a favorable influence on the disease. The pain, in considerable measure, may be controlled by an eight-per-cent. solution of cocaine hydrochloride, and still more effectually by the use of bromide of ethyl, which, when properly administered, secures anæsthesia in from thirty to sixty seconds, which lasts but from one to two minutes, and seldom leaves so much as a headache.

It must not be understood that squeezing is considered a substitute for all other treatment. Many cases of this persistent disease will test the patience of the patient and the tact of the physician in conducting the disease through the second stage until there are no new crops of follicles to be squeezed out. It will be found necessary to exercise intelligence in the selection of agents to control the inflammatory conditions of the lids as well as the complications of the cornea and iris which may exist.

Attention to the general health must not be overlooked; neither must the condition of the lacrymal drainage be ignored. The surgical indications furnished by entropion and blepharo-phimosis must also receive efficient and prompt attention, for the eye is but an organ of the physical economy and is dependent upon the general condition as well as the local environment for the successful operation of its special function.

Miscellany.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending July 26th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—										
				Cholera.	Yellow fever.	Small-pox.	Varicolic.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	July 20.	1,573,995	964						5	7	20	4	15	
Philadelphia, Pa.	July 20.	1,046,245	536						17	4	2	5	5	
Brooklyn, N. Y.	July 20.	834,607	412						2	2	12		4	
Baltimore, Md.	July 20.	500,343	240						2	2	2		2	
San Francisco, Cal.	July 12.	350,000	101								1			
Cincinnati, Ohio.	July 20.	325,000	138						1		5	7	1	
New Orleans, La.	July 13.	254,000	121								1	1	1	
Cleveland, Ohio.	June 15.	235,000	86						3	4	4	1	1	
Cleveland, Ohio.	June 22.	235,000	64						2	1	3			
Detroit, Mich.	July 13.	230,000	107							1	1			
Pittsburgh, Pa.	July 20.	230,000	104			1			2		1		1	
Washington, D. C.	July 20.	225,000	133						8				3	
Minneapolis, Minn.	July 13.	200,000	75						1		3			
Minneapolis, Minn.	July 20.	200,000	50						1		3			
Newark, N. J.	July 2.	184,669	95						3	1	4		3	
Newark, N. J.	July 9.	184,669	124							2	7	1	1	
Newark, N. J.	July 16.	184,669	128						2		2		2	
Kansas City, Mo.	July 20.	180,000	58						3					
Rochester, N. Y.	July 20.	130,000	55									1		
Providence, R. I.	July 20.	127,000	59								1	1	3	
Denver, Col.	July 19.	100,000	31						3	1	2			
Richmond, Va.	July 15.	100,000	59						2					
Richmond, Va.	July 22.	100,000	55						1					
Toledo, Ohio.	July 19.	83,500	20						1				2	
Fall River, Mass.	July 20.	69,000	44											
Nashville, Tenn.	July 20.	65,153	21						2					
Charleston, S. C.	July 13.	60,145	46									1		
Charleston, S. C.	July 20.	60,145	47						1					
Lynn, Mass.	July 20.	50,000	13											
Portland, Me.	July 20.	42,000	19											
Manchester, N. H.	July 13.	42,000	16							1				
Galveston, Texas.	July 5.	40,000	14											
Council Bluffs, Iowa.	July 13.	35,000	6											
San Diego, Cal.	July 13.	32,000	2											
Binghamton, N. Y.	July 20.	30,000	16											
Altoona, Pa.	July 13.	30,000	9											
Altoona, Pa.	July 20.	30,000	15								1			
Auburn, N. Y.	July 20.	26,000	15								1			
Haverhill, Mass.	July 20.	25,000	10											
Newport, R. I.	July 18.	22,000	3											
Newton, Mass.	July 20.	21,553	7						1					
Rock Island, Ill.	July 15.	16,000	1											
Keokuk, Iowa.	July 20.	16,000	9											
Pensacola, Fla.	July 15.	15,400	8						1			2		
Pensacola, Fla.	July 20.	15,000	8											

Diagnosis of Brain Cysts.—“Professor Edmond Souchon, of New Orleans, has suggested that in cases in which the diagnosis of cyst or abscess of the brain is doubtful, the brain may be explored with a fine aspirating needle introduced through a small hole made in the skull with a watchmaker's drill, furnished with a gauge and screw so adjusted as to prevent the ‘bit’ from penetrating too deeply after working through the bone. He has performed the operation several times on dogs, and these animals, after recovering from the chloroform, did not seem to have been in any way affected by the operation, and remained afterward in perfect health. In an animal killed before recovering from the chloroform there were seen only small extravasations under the scalp and under the pia mater. Professor Souchon thinks that the ‘bit’ used should be large enough to make a hole in the skull to admit a needle twice the size of an ordinary hypodermic needle.”—*British Medical Journal*.

Propeptonuria or Hemialbumosuria in Measles.—“Propeptone, or hemialbumose, is known to exist in the urine in many diseases in addition to osteomalacia, in which it was first found by Dr. Bence Jones. Thus it has been detected in abscess of the liver, septicæmia, hip disease, peritonitis, endocarditis, parametritis, spinal curvature, Bright's disease, and in the puerperal state. Dr. Loeb, of Frankfort, now writes that he has found it in the urine of nine patients with measles out of twelve cases of the kind in which he examined the urine for it. The method of testing employed by him is as follows: Sulphuric acid added to the urine drop by drop causes, if propeptone is present, a copious,

white, flocculent precipitate, which disappears on heating, but reforms if the liquid is allowed to cool. Acetic and hydrochloric acids will give a similar reaction. It must be remembered that an excess of acid will redissolve the precipitate; therefore it is necessary to be careful to add it slowly. As a rule, in the cases of measles examined the reaction was obtained for about two days at the beginning of the affection after the temperature had begun to go down, but before the rash had disappeared. Dr. Loeb found in several of his cases some enlargement of the liver, which he thinks may have some connection with the change in the urine. He also suggests that perhaps the skin affection is connected with the formation of propeptone, as it has been found in patients suffering from various affections in which the skin is implicated; thus Leube found it in urticaria, Ter-Gregorianz in diffuse dermatitis, and Lassar was able to produce it in animals by rubbing petroleum ointment into the skin. Regarding the relation of propeptonuria to the condition which gives the so-called dinitro-benzolic acid reaction which is frequently found in typhoid, scarlatina, advanced phthisis, and other febrile diseases, Dr. Loeb has found that its presence does not always imply the existence of propeptonuria, though in many cases the former condition coexists with it.”—*Lancet*.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of “original contributions” are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers. All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

A CLINICAL LECTURE
ON IRRIGATION OF THE STOMACH.

DELIVERED AT THE
NEW YORK POST-GRADUATE MEDICAL SCHOOL, JULY 2, 1889.

By JAMES K. CROOK, M. D.,
INSTRUCTOR IN CLINICAL MEDICINE AND PHYSICAL DIAGNOSIS.

This morning, gentlemen, I wish to call your attention to a therapeutic procedure in the management of certain gastric diseases which, I have reason to believe, is not resorted to as often as it should be. I refer to irrigation of the stomach, or, as it is sometimes called, lavage. A careful examination of our principal medical journals for several years back, in addition to conversations on the subject with a considerable number of physicians in active practice, convinces me that this method of treatment is suffering from an undue neglect. It was introduced, about twenty years ago, by Kussmaul, who employed it in cases of gastrectasis, or dilatation of the stomach, and a majority of those who have since adopted it have limited its use to that particular affection. There is no doubt, however, that its range of application is capable of much greater extension. Indeed, I have no hesitation in saying that it should be given a trial in every case of chronic dyspepsia in which medicines have failed, provided there is no contra-indication to its use. We are safe in assuming that most of these patients have more or less gastric catarrh, and, at any rate, we can do no harm by the exceedingly safe and simple operation which I will show you presently. The chief advantages of lavage are as follows: 1. Owing to a loss of peristaltic power, often present in simple dyspepsia and always in dilatation, the stomach is unable to rid itself properly of ingested material until long after the period of normal digestion. This condition has been termed by Rosenbach insufficiency of the stomach. This stagnating and fermenting material, in some instances, will remain in the stomach for days at a time, as shown by the vomiting of substances known to have been ingested a long time previously. The stomach is liable to become greatly irritated in this way, and inflammation may even be developed. By the timely employment of the tube all this material may be washed out, and the stomach thoroughly cleansed and allowed a period of perfect repose. We may thus in many cases restore the lost elasticity and muscular contractility of the organ. 2. In cases of simple gastric catarrh it relieves the stomach of the superabundant mucus, and perchance bile, that may be present. 3. By reason of its safety and simplicity, an intelligent patient may be readily taught to use the tube himself. Washing of the stomach should be performed at least six or eight hours after eating, when the organ is supposed to be empty. For this reason an early morning hour before the first meal is commonly chosen. It should be performed every day at first, then every other day, dropping to once a week, and finally discontinuing altogether. Tepid water should be used, to which, if desired, may be added certain medicaments—bicarbonate of sodium, car-

bolic acid, creasote, hyposulphite of sodium, Lugol's solution, etc. The prognosis is, of course, most favorable in cases of simple dyspepsia and early dilatation. In old cases of gastrectasis we can expect palliation only. The best results are seen in cases of gastric insufficiency, the criteria of which I have mentioned.

With these preliminary remarks, we will now devote ourselves to the patient who presents himself. He informs us that he is thirty-four years of age and a brass-molder by occupation. On February 21st he came under my observation, giving a history as follows: For about a year past he had been suffering from flatulence, pyrosis, obstinate constipation, and cardiac palpitation. The latter symptom especially was so severe and constant that the patient was firmly fixed in the belief that he had heart disease. He had applied to several physicians, but had failed to obtain relief. I found him in a very melancholy frame of mind, as he had begun to lose hope of ever getting well. He was put under treatment, and various remedies prescribed for the relief of his symptoms. There was no improvement, however, and at the end of two months he was rather worse than at the beginning of my treatment. On April 24th I resorted to irrigation of the stomach, and have continued it at gradually increasing intervals since that time. For the past month it has been performed at intervals of two weeks, and to-day I think is about the last time it will be required. If you will question the patient, you will learn that the symptoms began to abate immediately after the first washing, and his improvement has continued steadily ever since. He has gained in weight, his appetite is greatly improved, and he has a regular daily evacuation from his bowels. He has not been troubled for three weeks with cardiac palpitation, and the pyrosis has disappeared entirely. This improvement I attribute to the periodical irrigations of his stomach, although certain dietetic and hygienic precautions have doubtless had some influence. His nourishment has consisted chiefly of fresh milk and tender beefsteak, broiled underdone, chopped fine, and thoroughly masticated, with stale or toasted bread. Latterly he has been allowed a mutton-chop, the white meat of fowls, and an occasional lightly cooked, poached egg. Saccharine, amylaceous, and fatty substances have been excluded as far as possible. Such notorious dyspepsia breeders as boiled cabbage, rich cake, pies, strong tea, fat pork, etc., have been given a wide berth. The patient has been allowed a glass of claret for dinner, but no other stimulant whatever. The only medicines taken since employing lavage have been a little bismuth and pepsin, with a few grains of aromatic powder to correct occasional spells of flatulence occurring in the intervals of the irrigations. I may say that the patient has been exceedingly tractable, and, I believe, has obeyed my instructions to the letter.

The instrument I employ is a large-sized soft-rubber tube about thirty inches in length, and having two eyelet holes in the distal extremity. It is exactly similar to a large-sized Jacques urethral catheter, being of the size marked 19 A. (American scale) by Tiemann, of this city. Some employ a longer tube, having a funnel connected with

its proximal extremity, known as the Fancher tube, but I prefer the one I have here, attaching it by means of a short glass cylinder to the hose of an ordinary fountain syringe, which I hang on a convenient hook in the wall above the level of the patient's head. After anointing about twenty inches of the distal portion of the tube with vaseline I pass it back to the patient's pharynx, instructing him at the same time to swallow. The end of the tube readily engages in the upper extremity of the œsophagus, and by a little gentle, continuous pressure it gradually passes down into the stomach. When I first passed the tube in this case there was considerable retching, and even a little vomiting, but by repeated use the patient has acquired a toleration for it, and you will notice now that it produces no sign of annoyance or discomfort. In some cases we will have to exercise no little patience and perseverance at the first attempt at introduction. Sometimes the patient will vomit the tube as quickly as it is placed in position. Such cases are not common, however, and tolerance is usually quickly acquired. In obstinate cases a four-per-cent. solution of cocaine may be applied to the pharynx and fauces by an atomizer before introducing the stomach-tube. Having the tube *in situ*, I now connect it with the syringe, at the same time filling the latter with simple tepid water, which, as you see, passes rapidly from the bag into the stomach. After I allow about two pints to run in, the patient expresses a sensation of fullness in the region of the epigastrium, so I cut off the flow by means of a stop-cock on the hose of the syringe. I now disconnect the hose from the syringe and depress the former, holding it over a vessel placed ready to receive the fluid from the stomach. A reverse current is immediately established on the principle of the siphon, and the contents of the stomach pass very readily through the tube into the receiver. There is no solid matter in the stomach, as the patient informs us that he took nothing for his breakfast except a cup of chocolate with a little milk. You will notice that the flow is occasionally interrupted and stops altogether at times. This is due to flocculi of phlegm and mucus in the stomach, which engage in the tube and arrest the current. This mucus was very abundant at first, but has progressively diminished until now it amounts to very little. It may be driven through or disengaged from the tube by instructing the patient to bear down; by gentle but firm pressure over the epigastrium with the hands; by shifting the position of the tube, withdrawing it slightly, and returning it; or, finally, by connecting it with the syringe again and allowing more water to enter the stomach. While the water is flowing into the stomach it is a good plan to walk about the room with the patient, holding the syringe on a high level and instructing him to lie down a little while and to agitate his body in such a way that the fluid reaches every portion of the gastric mucous membrane. I continue to replenish the water and allow it to flow out again until six or eight pints have been consumed. You will see that it now returns from the stomach perfectly clear and contains no mucus whatever. In the last installment of water I dissolve fifteen or twenty grains of salicylate of sodium as a safeguard against renewed fermentation. Just here I will mention another application for irrigation. We

now know this man's stomach to be perfectly empty. By percussion of the epigastrium we may, if we desire, ascertain the condition of affairs in that region, carefully noting the areas of tympanitic resonance, dullness, etc. Now, if we introduce another pint or two of water and percuss again, we shall find a new area of dullness which corresponds to the lower border of the stomach. If we find this line persistently an inch or two below the level of the umbilicus, it is fair presumptive evidence of gastric dilatation. By repeated examinations we can make out any changes occurring in this level and thus estimate to some extent the value of treatment. If the stomach is regaining its lost muscular power and elasticity, the lower border will gradually return to its normal position just above the umbilicus.

Feeling convinced that this patient's stomach is thoroughly cleansed, I withdraw the tube gently, and the operation is completed. In the present case, as in others I have treated by lavage, the operation is followed within a few minutes or half an hour by two or three watery evacuations. This has occurred even in cases of obstinate constipation. It is doubtless caused by a certain quantity of water escaping from the stomach into the duodenum and passing through. It is probable also that in some cases the lower end of the tube passes through the pylorus if we introduce it too far, so that the duodenum receives a considerable proportion of the fluid. At any rate, this watery evacuation of the bowel is probably a favorable occurrence, and is usually regarded in that light by the patient. A gentleman of the class asks whether the dietary precautions in this case may not be responsible for the favorable result. While by no means underestimating this part of the treatment, I think a sufficient answer to the question is found in the fact that the same restrictions were observed for weeks before employing lavage, but with no improvement whatever in the symptoms. Before dismissing the subject, I should state that there are certain contra-indications to the use of the tube. It should not be used: 1. In cases of aneurysm of any of the great thoracic vessels. 2. In cancer of the œsophagus or cardia. 3. In cases of recent hæmatemesis, hæmoptysis, or gastric ulcer. 4. In very nervous or hysterical patients, and in cases of great debility and prostration with a tendency to syncope. Of course, in cases where we wished to secure an immediate evacuation of the stomach, as in cases of poisoning, we should have recourse to the pump.

Induction of Premature Labor.—"Dr. Chenevière, in the 'Revue médicale de la Suisse Romande,' gives an account of a simple method which he has employed for inducing premature labor. The cervix is brought into view with a speculum, and about twenty small iodoform tampons are passed through the os uteri by means of a thick sound. The plug reaches rather above the internal os. A larger plug is then placed against the vaginal portion to keep the cervical plug in position. Three cases are given in which the method was adopted. In the first, pains came on in two hours, and the labor was terminated in fourteen hours; in the others, more than one plugging of the cervix was necessary, labor taking place on the following day. In one case some of the tampons were only passed several hours after the expulsion of the fœtus and placenta; and the author therefore thinks it well to have the tampons counted to avoid the possibility of any being left behind."—*British Medical Journal.*

Original Communications.

AN ANALYSIS OF NINETY CASES OF
SIMPLE CHRONIC GLAUCOMA,WITH SPECIAL REFERENCE TO THE EFFECTS OF
IRIDECTOMY ON THE ACUITY OF VISION AND THE VISUAL FIELD.*

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THE remarks embodied in this paper are based upon a careful analysis of ninety cases of simple chronic glaucoma which the writer was enabled to follow out for a varying length of time subsequent to operation. They embrace all the facts in regard to each case which have any bearing upon the subject of the effects of iridectomy upon the acuity of vision and the state of the visual field. The cases extend over a period of about seventeen years, were all examined and treated by the reporter, and the conclusions drawn are therefore derived merely from his own personal experience.

Of the ninety cases under consideration, forty-four were in males and forty-six in females, the cases being nearly equally divided between the sexes. The age of the patients varied between twenty-four and eighty-six years.

In the decade between twenty and thirty there were two cases; between thirty and forty, seven cases; between forty and fifty, sixteen cases; between fifty and sixty, twenty-four cases; between sixty and seventy, thirty-three cases; between seventy and eighty, four cases; and between eighty and ninety, four cases.

Of the ninety patients, seventy-seven were Christians and only thirteen were Hebrews. This is contrary to the usually accepted belief that the Hebrew race is peculiarly prone to this disease.

The refraction of the one hundred and eighty eyes of these ninety patients varied as follows: Simple hypermetropia existed in one hundred and five eyes, simple myopia was found in ten eyes, and emmetropia existed in six eyes. Simple hypermetropic astigmatism was found in ten eyes. Compound hypermetropic astigmatism was met with in twenty-four eyes, and compound myopic astigmatism in two eyes. In two eyes a condition of phthisis bulbi prevented any measure of the refractive condition, and in eighteen eyes the advanced state of the cataract present was an obstacle to the same end.

The cornea was more or less cloudy in the right eye in five cases and in the left eye in five cases.

The anterior chamber was shallow in one eye in thirty-four cases and in both eyes in forty-one cases. It was of normal depth in twenty-five eyes, and was entirely abolished in twenty-eight eyes.

The iris was more or less movable in all the cases except in those eyes in which the condition was that of absolute glaucoma.

The lenses were entirely clear in one hundred and twenty-two eyes—sixty-three on the right side and fifty-nine

on the left side. There were slight peripheral opacities in the lens in thirty-five eyes—nineteen on the right side and sixteen on the left side. There was cataract in an advanced stage in eighteen eyes—in six cases in the right eye and in twelve cases in the left eye.

Phthisis bulbi existed in one eye in two cases. In one of these cases the eye had been lost in childhood from purulent conjunctivitis, and in the other case the loss of the eye was due to traumatism, and occurred in childhood or early youth.

The glaucomatous excavation of the optic disc was very deep in one hundred and six eyes, moderate in depth in forty-eight eyes, and in seven eyes there was no excavation demonstrable, though there were both diminution of vision and narrowing of the visual field.

The condition of the field of vision varied greatly, and is worthy of close and attentive study. In five cases it was contracted in one eye and normal in the other. In eighteen cases it was contracted in one eye, and either telescopic or entirely absent in the other. In thirty-nine cases it was contracted in both eyes. In seven cases there was no measurable field in one eye, and in the other there was absolute glaucoma. In twelve cases it was contracted in one eye moderately, and there was absolute glaucoma in the other. In six cases there was no measurable field in either eye. In three cases there was no limitation of the field in either eye. In one case there was absolute glaucoma in one eye and a perfectly normal field in the other.

Among the ninety cases, or one hundred and eighty eyes, there were twenty-two eyes afflicted with absolute glaucoma—nine on the right side and thirteen on the left side. In each of these cases the other eye was the seat of simple chronic glaucoma.

The intra-ocular tension was increased in both eyes in seventy-five cases. It was increased in the right eye alone in eight cases and in the left eye alone in six cases. The tension was normal in both eyes in three cases, in the right eye alone in four cases, and in the left eye alone in eight cases. The tension was diminished in the right eye in two cases.

One of the most doubtful points in the history of the development of simple chronic glaucoma is the determination of the interval between the outbreak of the disease in the two eyes. In the majority of the cases the patients are unable to determine how long an interval existed between the beginning of the attack in the two eyes, and in many instances the statement of a simultaneous attack in both eyes is of very doubtful value. Among the ninety patients under consideration, sixty-four were unable to give any opinion as to the length of interval between the attacks in the two eyes, and many of these stated vaguely that the disease began simultaneously in both eyes. In twenty-six cases the interval was known with tolerable accuracy, and varied between two months and twelve years. In twenty-eight cases the right eye was the first attacked, and in twenty-two cases the disease began in the left eye.

In all the ninety cases the only operation done was an iridectomy, always broad and usually upward, and in the majority of cases the instrument used was the ordinary

* Read before the American Ophthalmological Society at its twenty-fifth annual meeting.

lance-knife. In no case was the operation followed by an extraordinary amount of hæmorrhage, nor by any symptom pointing to malignant complication. In forty-five cases a simultaneous iridectomy was done on both eyes. In seventeen cases an iridectomy was done on one eye, and was followed at a varying interval by an iridectomy on the fellow-eye. In eight cases an iridectomy was done on one eye only, the other eye remaining normal as long as the patient was under observation, which, in many instances, extended over a period of years. In two cases two iridectomies were done upon one eye, with an interval between them. In one case an immature cataract was extracted at the time of the operation of iridectomy. In one case a sensitive atrophied stump was enucleated, preliminary to an iridectomy on the other eye. In twenty cases an iridectomy was done on one eye, the other eye being blind from absolute glaucoma.

In all these cases of simple chronic glaucoma the chief interest centers in the state of the acuity of vision and the *prognosis* as to the results of an operation. To this end an accurate history was kept of each case, with special reference to vision and the visual field, before and after the operation for a varying length of time, which, in some cases, extended over a period of years, and the result is very far from encouraging, as the cases show a condition of the vision and visual field worse than had been anticipated.

One hundred and fifty-four operations were done on the one hundred and eighty eyes under consideration. Vision was temporarily improved by the iridectomy in both eyes in two cases and in one eye in six cases; but in all eight cases, after a few months, a steady loss of vision and narrowing of the field set in, and continued progressively as long as the patients were under observation. Vision remained unchanged, neither better nor worse, after the operation for a period of one year or longer, in both eyes in eight cases and in one eye in twenty cases. Vision grew slowly and steadily worse after the operation in both eyes in forty-one cases and in one eye in twenty-nine cases. Vision grew rapidly worse after the operation in both eyes in two cases and in one eye in eight cases.

One point in connection with the effect of the operation upon the resultant vision is of some importance, and sufficient attention does not seem to have hitherto been called to it. In those cases in which the lens shows peripheral opacities, whether due to the natural senile change or directly to the interference with the nutrition of the lens induced by the glaucoma, the question would naturally arise, What effect has the iridectomy upon the lenticular opacities? Peripheral opacities of the lens existed in thirty-five of the one hundred and eighty eyes considered, and repeated examinations showed that the operation had materially hastened the growth of the cataract in twenty eyes, or more than fifty per cent.

Another point elucidated by a study of these cases is that the effect of the operation varies as to vision according to the stage of the disease at the time of the operation. If we limit arbitrarily the early stage of the disease to the first six months, and regard everything beyond this as belonging to the later stages of the disease, it will be seen that the earlier the operation is done the more likely are we to

obtain a good result; but to this there are not a few marked exceptions. It will be well in this comparison to regard every case where the existing vision has been maintained after the operation as a good result. A comparison of the results of operation in these cases shows that an early operation gave a good result in both eyes in four cases and in one eye in eight cases. But the reverse of this is somewhat significant—viz., an early operation gave a bad result in both eyes in four cases and in one eye in twelve cases. Now, when we come to consider the later stages of the disease, we find that a late operation gave bad results in both eyes in thirty-four cases and in one eye in twenty-six cases. The reverse of this is, however, significant—viz., a late operation gave a good result in both eyes in three cases and in one eye in eleven cases.

In analyzing the histories of these cases, both individually and collectively, it will be found a difficult matter to draw any satisfactory conclusions as to prognosis after operation. Many of the cases of simple chronic glaucoma are of long duration, even when left entirely untreated. Experience has taught most operators that a large iridectomy often causes serious optical inconvenience, even when the vision is fairly good, and that in many instances, when the field is much contracted, an iridectomy causes a still further diminution in the size of the field. Furthermore, the state of tension is no reliable guide in forming a prognosis, and bears no constant relation to the condition of the iris or anterior chamber, or to the acuity of vision and state of the visual field. The depth of the excavation in the optic disc bears a very inconstant relation to both the degree of vision and the state of the field, and is almost equally at variance with the condition of intra-ocular tension. It is no uncommon experience to find an almost typical glaucomatous excavation in an eye with perfectly normal vision and visual field, and without another symptom of glaucoma. Yet in these cases Nettleship hints that such an excavation may be of importance, as tending to prove that chronic glaucoma may begin rather in the optic nerve than in the ciliary region, and argues that such suspicious appearances may precede the outbreak of rapid glaucoma. (See "Royal London Ophthalmic Hospital Reports," xii, 2.)

There are several known causes for the failure of the operation to stay the progress of the disease. One of these is some unfavorable process going on in the vicinity of the wound, especially in aged patients or in those in a bad state of health. Another is a more or less marked displacement of the lens by the operation, owing to undue violence or to a weak suspensory ligament, which in its turn leads to the development of cataract, especially in eyes with peripheral opacities already existing in the lens. Another cause, not infrequently seen after an iridectomy done simply for optical purposes, is a slowly progressive haziness of the cornea, extending usually from the site of the wound. This I have not myself met with in any case of glaucoma. Another not infrequent cause, resulting directly from the operation, is the continued contraction of the field of vision.

The opinion is held by some authors that when glaucoma occurs in a myopic eye, it does so early in the patient's life. This has not been my experience. Among the one hundred

and eighty eyes under consideration, myopia or myopic astigmatism, or both, was met with in fifteen eyes, occurring among nine patients, and of these nine patients only two were under sixty years of age. This result is directly at variance with the latest statistics published by Nettleship. With regard to the opinion that the prognosis in such cases is especially bad, my experience is not sufficient to justify any conclusion.

The prognosis after operation is also influenced by the condition of the patient's health, and probably also by the location and size of the wound. The farther back from the corneal margin the wound is made, the larger will be the segment of iris removed, and the less the liability of the formation of anterior synechia. There are certain opinions held by most ophthalmologists in regard to the so-called cystoid or "filtering" cicatrix—namely, that in desperate cases it is a favorable condition, by allowing free percolation of fluid through the lips of the wound and beneath the conjunctiva and thus aiding in keeping the tension low. This is undoubtedly true in so far as the maintenance of normal tension has a direct influence upon the maintenance of the existing vision. But this is only one of the factors interested in the preservation of the existing vision, and not a few cases of simple chronic glaucoma show a diminished tension from start to finish; and these cases, in the reporter's experience, all end unfavorably.

Conclusions.—In endeavoring to draw some rational conclusions from the study of ninety cases, it seems wise to begin with a quotation from Priestley Smith, to whom ophthalmologists owe so much of their knowledge of the pathogeny and pathology of glaucoma:

1. In considering the expediency of an operation in simple chronic glaucoma he says: "In every case of chronic glaucoma the responsibility of advising an operation is a heavy one, and should on no account be undertaken without a full explanation to the patient or his friends of the almost positive certainty of blindness on the one hand, and of the uncertainties which beset the operation on the other. Having regard to the age of the patient, the impossibility of great benefit, and the possibility of a painful and accelerated progress, a prudent surgeon will only operate on the express desire of the patient to receive the only possible chance of benefit, however small it may be." Armed with the preceding precaution, it seems to be our duty to operate in cases of chronic progressive glaucoma, and the earlier the better.

2. If the disease in a given case seems to be stationary and is still in the primary stage, and if it be possible to test the vision and the visual field at short intervals, delay in operating is permissible, but a weak solution of eserine or pilocarpine should be used daily, merely as an aid in controlling the course of the disease. The examination of these patients should be at short intervals, and should invariably include the tests for visual acuity and the careful examination of the visual field.

3. If the disease exists in both eyes, but with useful vision in both, the eye in which the disease is the more advanced should be operated upon without delay; and the surgeon will be guided in his treatment of the fellow-eye by the result of the operation on the first eye.

4. To insure the best result, the incision should be made well in the sclerotic, with a narrow cataract-knife or a very broad lance-knife, and the entire segment of iris, from one end of the incision to the other, should be carefully torn or excised from its insertion.

5. The most carefully performed iridectomy by skillful hands is sometimes followed by the rapid loss of what sight still remains, sometimes partial, but, unfortunately, sometimes also total.

6. A successful result is, in the majority of cases, more likely to follow the operation if it is performed early in the course of the disease, but the preservation of the existing degree of vision even in these cases is not invariable.

7. As regards the question of symmetry, it is probable that in the large majority of cases—perhaps as much as eighty per cent.—the disease is sooner or later present in both eyes, and a careful study of the cases seems to establish the fact that there can be no specified or certain interval of time which insures the second eye against an attack.

8. If the patient is old and feeble, and one eye is still free from the disease for a year or more after the other eye has become affected, it may be considered prudent to avoid an operation on the affected eye, as it is probable that the unaffected eye may remain free during the remainder of the patient's life.

9. The condition of the field of vision is no constant guide, either in forming a prognosis as to the progress of the disease or in deciding as to the time of operation.

10. The acuity of vision bears no constant relation to either the success or the failure of the operation.

11. The anterior chamber is usually shallow, is occasionally entirely absent, but is often apparently normal in depth. The condition of the chamber gives no reliable hint as to the state of the vision or the visual field, nor any indication as to prognosis.

12. The appearance and motility of the iris appear to have some bearing upon the prognosis, though not perhaps to the extent believed by Nettleship. The latter states that in the cases in which the iris reacted rapidly to eserine the operation proved successful. This has not always been the experience of the reporter; but in the majority of the cases in which eserine caused rapid contraction of the pupil, the visual acuity was fairly good and the field was not seriously limited.

13. The depth of the excavation in and the color of the optic disc seem to have no close connection with the defect in vision or with the limitation of the visual field; nor do they offer any constant guide as to prognosis, or to the effect of an operation upon the progress of the disease.

14. The condition of the intra-ocular tension is a very uncertain guide in deciding the time for operating. It may be normal or increased, or even diminished. It does not seem to bear any constant relation to the degree of visual acuity or to the state of the visual field. The steady maintenance of an increased tension, however, without any diminution, almost invariably indicates the necessity for an immediate operation, and this necessity is especially indicated if the tension is continually on the increase.

15. The health and age of the patient exert a decided influence upon the effect of the operation, and any marked evidence of senility is distinctly unfavorable to operation.

A CASE OF SARCOMA OF THE THYROID GLAND.*

By J. SOLIS-COHEN, M. D.,
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Pressure on the Right Sympathetic Nerve; Unilateral Tonic Spasm of Laryngeal Muscles; Intermittent Clonic Spasm of Opposite Side; Compression Stenosis; Tracheotomy; Hemorrhage from the Gland Twenty Months later; Pressure upon the Left Sympathetic Nerve; the Functions of the Compressed Pneumogastrics aroused by Irritation of the Trachea; Death from Disturbance in the Functions of the Two Pneumogastrics.

X. Y. Z., of Wyoming Territory, a stock raiser, aged about forty-five years, applied to me July 18, 1887, at the instruction of his physicians, with a swollen neck, dyspnoea, right-sided ptosis and contracted iris, abnormal warmth of the same side of the face, and with frequent right-sided perspirations of both neck and face. His clinical history was as follows: He was reared in a limestone district, and had always led an active outdoor life. His mother had had a goitre, which he thinks was the cause of her death. A brother and sister have disease of the throat, which he thinks is due to swellings in the neck.

Somewhere about 1871-'72 he began to notice that in running he got out of breath much sooner than any of his companions, and that his neck was getting thicker and thicker, so that within from five to six years it increased fully two inches in circumference. His general health continued good. In 1874 he suffered pain for the first time. This pain was a neuralgia of the right eye, which had been more or less continuous since, and at times excruciating. In 1881 he had erysipelas of the right side of the face, and about one month after recovery therefrom his right upper eyelid drooped and the ptosis had been continuous. In 1885 he noted that the right side of his face was hot, and this heat had been continuous since. This heat had been attended by frequent perspirations of the right side of the face and neck, sometimes several times a day.

The patient was a sturdy man of medium height, with an irregular, dense, nodulated tumor of the thyroid gland, larger on the right side, with several enlarged cervical glands to the exterior of the tumor, and with considerable collateral effusion into the surrounding connective tissue. This effusion he stated was much less since he had left the high altitude of Colorado. He had considerable continuous dyspnoea, and had had a few suffocative spasms. The outline of the lower portion of the larynx and of the trachea could not be defined. He had contraction of the right pupil, ptosis of the right upper eyelid, and redness and heat of the right side of the face, with frequent perspiration of the same territory. The right vocal band was immobile in the median line (Fig. 1), and the movements of the left band were feeble, but sufficient for respiratory and phonatory purposes. The diagnosis made was that of malignant tumor of the thyroid gland with stricture of the trachea by compression. The ptosis, contraction of the pupil, heat of the face, and perspiration I attributed to the results of pressure upon the sympathetic nerve; and the spastic contraction of the vocal band in the middle line to the result of pressure or irritation upon the recurrent laryngeal nerve.

A tentative treatment with arsenic internally and withunctions of diluted red iodide of mercury ointment over the mass soon produced improvement in breathing and marked diminution in the bulk of the tumor, especially in the nodules at its periphery.

On August 1st I noted for the first time clonic spasms of the left vocal band, rendering the slit for breathing very narrow, but without producing as much disturbance of breathing as I had noted in similar conditions. I attributed this spasm to reflex irritation from traction on the right pneumogastric by the contraction of the mass, rather than to any direct implication of the recurrent nerve of the left side. The patient reported that he had nearly choked the night before, apparently from something which he had swallowed; but I attributed this to spasm. I deemed it most prudent to send him at once to a hospital, where I performed a prophylactic tracheotomy without anæsthesia a few hours later.

On the right side of the middle line, the skin, the intermediate tissues, the thyroid gland, and the wall of the trachea were all one continuous mass. The trachea was away over to the left side of the neck, and was bent upon itself in its descent behind the sternum. The incision had to be made directly through the enlarged isthmus of the gland. This structure was so calcified posteriorly as to necessitate the use of the curette to scrape a way through to the trachea. After the trachea had been opened a terrific hæmorrhage took place from a portion of the tumor which had penetrated the left side of the trachea. This hæmorrhage was so sudden and so profuse that, had the patient been unconscious, he would in all probability have perished through inability to obey instructions necessary—to place his neck in a favorable position and to cough out the blood as it flooded the air-passage. On account of the bend in the trachea, it was found impossible to introduce the cannula with the aid of the ordinary pilot conductors. Trousseau's dilator and Golding-Bird's dilator both failed; but with the three-valved dilator of Laborde, fortunately at hand, it was found practicable to keep the opening patent and to push the impending swelling to one side, so as to admit of the introduction of the tube. The patient professed to have experienced no pain whatever during the operation, pain having probably been deadened by the attending excitement. The condition of the parts was such as to justify the inference that the cervical vessels were involved in the growth, thus precluding attempts at extirpation of the mass in the future.

The neuralgia of the right eye ceased with the operation and did not return, and the heat and perspiration of the face diminished considerably. The ptosis and contraction of pupil remained uninfluenced.

Before the wound was dressed, the exposed portion of the diseased gland was dusted with potassium-chlorate powder. This produced considerable disintegration of a portion of the mass which discharged through the external wound, and the size of the tumor diminished to such an extent that, at the end of two weeks, the length of the tube had to be lessened by nearly half an inch, and the tracheal opening had receded a little toward the middle line of the neck.

I kept the patient under observation for about six weeks, during which time he progressed very satisfactorily in every way, except that the clonic spasm of the left vocal band soon became tonic, with permanent occlusion of the glottis to a very narrow slit totally insufficient for respiration (Fig. 2). It ap-

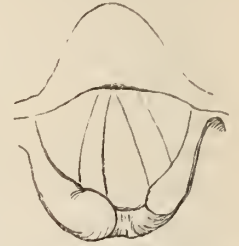


FIG. 1. — Immobility of the right vocal band in the median line.

* Read before the American Laryngological Association at its eleventh annual congress.

peared in this instance, as I have noticed in similar ones, that as soon as the artificial opening in the trachea insured access of air to the lungs in sufficient quantity, the forced contractions of the dilating muscles of the glottis, in the struggles for breath, subsided, and the spasm became permanent and unopposed. I considered the condition to be spasm of the laryngeal muscles, rather than paralysis of the posterior crico-arytenoids, because of the tense condition of the edges of the vocal bands and the backward position of the arytenoid cartilages—physical conditions which require active contraction of portions of the posterior crico-arytenoid muscles. The voice was excellent as to modulation, but weak in intensity, reedy in tone, and reduced only with considerable expiratory effort.



FIG. 2.

About one month after the tracheotomy the patient complained of regurgitation of undigested food about three hours after the mid-day and evening meals. Whether this was due to pressure of the tumor upon the œsophagus, or to the presence of a diverticulum, remained undetermined, as the condition soon subsided and did not recur.

The patient returned to his home with his tumor diminished to fully one half of the bulk it had acquired previous to the operation. The trachea had not receded from its position somewhat to the left of the middle line. The contracture of the glottis had become permanent and apparently complete, so that there was practically no room for respiration through it.

Several months after his return to Wyoming Territory I received a letter from his physician, under date of February 15, 1888, in reply to a letter of inquiry, that "the patient was doing nicely, and coughed but very little, the enlargements on the neck having reduced considerably in size and being quite soft. The right pupil remained slightly contracted, and he suffered from occasional attacks of facial neuralgia. He was in good spirits. His weight was one hundred and forty-five pounds, a gain of twelve pounds since he had left Philadelphia. His appetite was fair. He underwent active exercise without much difficulty. He slept well, and, in short, was doing nicely—much better than he had dared to anticipate."

About one year later, February 2, 1889, the patient returned to me to learn whether anything could be done to disembarass him of his tube, the presence of which, interfering with his convenience, was the only thing he complained of. He felt perfectly well and vigorous. His neuralgias and other pains had almost ceased. The ptosis and contracture of the iris were as formerly. The tumor had enlarged somewhat. The larynx and trachea were fully an inch to the left of the middle line.

The glottis was oblique, from right to left, and practically air-tight, the vocal bands being in tense apposition (Fig. 3), and remaining quiescent on the strongest efforts at inspiration.



FIG. 3.

The larynx showed no indication of structural disease. The voice was good and well modulated. While no encouragement could be given as to any hope of dispensing with the tube, I thought something might be done constitutionally to reduce the bulk

of the tumor, and therefore put the patient on a course of Zittmann's decoction of sarsaparilla, under the influence of which the tumor diminished considerably in size in about two weeks, especially as regarded some enlarged lymphatic glands on the right side and just above the clavicle.

Some bloody oozing from the top of the wound was now noted on changing the cannula, but I could not determine its

source. It did not occur every day, and did not seem to be due to any erosion of the tissues. Despite my desire that the patient should remain with me, he insisted on returning home to shear his sheep, shipping himself a quantity of Zittmann's decoction, and carrying the formula for its manufacture with him, so that its use could be continued under the supervising sanction of his own physician.

Some three weeks after his departure I received a telegram that he was on his way to Philadelphia, his throat bleeding badly. Arrangements were made for his instant admission to Jefferson Medical College Hospital on his arrival. He arrived March 22d, looking well, but pale. The wound was not bleeding. He told me that the oozing of blood at changes of the cannula had gradually become more copious, and that, after a serious hæmorrhage, his physician had thoroughly cauterized the track of the wound with nitrate of silver, and had started him off to Philadelphia with strict injunctions not to remove the cannula under any circumstances until he had reached me—a most judicious procedure and advice, as the sequel proved, all oozing having ceased for two days. I allowed him to remain a day without disturbing the tube. On the next day, in the presence of the late Professor S. W. Gross, whose co-operation I had requested in anticipation of trouble, I removed the tube. Blood poured out from the fistula as from a little pitcher. After a moment of consultation, we cut down upon the parts without anæsthesia, exposing them freely, but we could find no bleeding vessels. The hæmorrhage was parenchymatous from the left side of the body of the gland, which formed part of the fistula. We then cauterized the parts freely with the thermo-cautery, which restrained the hæmorrhage in great measure, but not wholly. Then the cannula was replaced, after having been wrapped in a tampon of gauze, into which a considerable quantity of Monsel's salt had been rubbed. This controlled the hæmorrhage satisfactorily, and the cannula was not removed until the fourth day. There was no further hæmorrhage. There was considerable dyspnœa after these procedures, and the parts became somewhat swollen. I noted contraction of the left pupil. This and the dyspnœa indicated an additional pressure on the left sympathetic and pressure upon the pneumogastries. The dyspnœa would come on suddenly, there would be an arrest of respiration, and then the face would become pale and then livid, consciousness becoming benumbed and occasionally abolished. Sometimes this condition would be preceded by spasmodic, irregular, diaphragmatic respiration. Any irritation of the mucous membrane of the trachea would relieve the dyspnœa, redden the face, and arouse the patient's consciousness. The dying functions of the nerves were aroused the most effectually by passing down a loop of wire—in fact, the wire of the brush used for scrubbing the cannula. This had been first used for the purpose of drawing out any clotted blood which might have been occluding the trachea. Relief by its introduction was so marked that the patient begged for its almost continuous presence in the trachea. He could recognize the spot in the posterior wall at which the loop of wire would be most effective, and would grasp the physician's hand to prevent its being moved therefrom. When it was withdrawn from time to time, the phenomena of arrest in respiration would supervene. Inhalations of oxygen gave but momentary relief to the dyspnœa. For three or four days there was little sleep, and that fitful and irregular, respiration being maintained chiefly by the presence of the foreign substance in the trachea, and the patient sank from exhaustion on the evening of the fourth day. A promised autopsy was prevented by the interference of relatives after they had arranged to permit it.

The marked feature in this case was the rousing of the pneumogastries by titillation of the tracheal mucous membrane and

the continuous presence of a foreign body—a condition which I had never observed, and of another record of which I have no knowledge.

THE RELATION BETWEEN
FACIAL ERYSIPELAS AND ERYTHEMA
ON THE ONE HAND,
AND INTRANASAL PRESSURE
ON THE OTHER.*

BY GEORGE W. MAJOR, M. D.,
MONTREAL, CANADA.

It is my firm conviction that facial erysipelas is sometimes produced by nasal causes acting independently of external infection. This decision has been arrived at as the result of careful observations extending over a number of years. I believe that a definite relation exists between many cases of erythema and erysipelas occurring on the nose, or in its neighborhood, and inflammatory conditions within the nasal chambers, more particularly when they are productive of pressure.

If such is the case, then it becomes our duty to distinguish erysipelas and erythema of an intranasal origin from the same diseases dependent upon other causes. The importance of accurately establishing the origin of these attacks can not be overestimated when we consider that success will often depend upon its recognition. The majority of subjects of facial erysipelas doubtless convalesce under local and constitutional measures even though the exciting cause is unknown and therefore is allowed to persist. The duration of the illness will be greater and the liability to extension and complications will be manifestly increased, not to mention the tendency to recurrence. If, therefore, a removable cause can be demonstrated as productive of facial erythema and erysipelas, we shall find ourselves in a better position to arrest the course of the disease when present, and in the future to prevent it altogether. This is my apology for briefly placing on record the four following cases, with a few remarks thereon:

CASE I.—In March, 1884, M. C., a young lady, aged twelve years, was referred to me by Dr. Arthur A. Browne, of Montreal, for the treatment of a troublesome nasal catarrh. On examination of the nose, I found a general hypertrophic condition present. The right middle turbinated body was very much enlarged, turgid, and abnormally sensitive to the touch. It was in contact with and pressing upon the nasal septum. On the cheek bone of the same side there was a dark, dull red and elevated patch of erythema of the area of a half-dollar. On inquiring into the history, I learned that this eruption had lasted for five months, that it had first made its appearance during a severe cold in the head, and that a nose-bleed seemed to diminish its prominence; a variety of local and constitutional remedies had been adopted without success. The probability of pressure being the cause at once suggested itself to my mind. Scarification and punctures of the middle turbinated tissue relieved the sensitiveness of the parts locally and diminished the redness of the facial patch. Soothing local collunaria also gave further relief. Subsequently a series of galvano-cautery appli-

cations permanently removed the pressure, and with it the erythematous blush gradually vanished. No local treatment was adopted for the eruption, nor were any constitutional means employed. There has not been at any time since a recurrence of the disease.

CASE II.—In February, 1885, I saw, in consultation with the late Dr. R. Palmer Howard, a case of facial erysipelas in a child of four years. The disease had commenced on the bridge of the nose and had extended to the cheeks. The condition had lasted for five days and showed no inclination to yield to the usual local and constitutional remedies. The child's stomach had become irritable and refused to retain anything whatever. On examining the nasal chambers, I found both nostrils obstructed with swelling, the result of an acute cold, and suggested the abandonment of all local and constitutional medication and the substitution therefor of warm alkaline nasal injections. In the course of twelve hours the swelling in the nasal chambers showed considerable reduction, and *pari passu* the erysipelous blush. In twenty-four hours all trace of the disease had disappeared.

Dr. Howard knew of my views relating to intranasal pressure, and willingly acceded to the change in treatment.

CASE III.—In the winter of 1884 I saw, in consultation with Dr. Browne, W. C., aged twelve years, suffering from erysipelas of the nose and cheeks. This child had frequently suffered from erysipelas having its origin always in the same region, though generally spreading to other parts of the body. Some of these attacks had been of most serious and alarming character. I had previously seen him in consultation when suffering from this disease, and had suggested to the medical attendant the likelihood of a nasal origin.

I ordered nasal injections alone, and had the satisfaction of seeing the disease disappear in the course of thirty-six hours. When convalescent I destroyed the hypertrophied turbinated tissue, and have been informed that no recurrence has taken place.

CASE IV.—In February of this year A. J., female, aged thirty-six years, was referred to my clinic at the Montreal General Hospital for an erythematous patch occupying the left cheek bone. She stated that it had already lasted four months and that it had so far resisted all treatment. A nasal examination revealed a swelling of the left middle turbinated body exerting pressure on the septum. After deeply puncturing the swelled tissue and allowing of a free flow of blood, a nasal cleansing solution was ordered. In a week the patient reported herself free from the disease.

I have notes of two more similar cases occurring under my own observation, and of four kindly furnished by colleagues, but abstain from making any use of them beyond their mere mention.

During an extended experience of nasal operative work common to all in our specialty, I have but once met with facial erysipelas succeeding a surgical operation in the nasal chambers. It was in a case of nasal polypi, and any interference invariably produced erysipelas. The man, however, came of a family in which erysipelas was a usual complaint. In the cases above referred to the erysipelas always commenced on the bridge of the nose, and was greatest on the side of greatest pressure. There was no condition present in the nasal chambers that I could recognize as of an erysipelous nature in any of them. Medical literature, in so far as I have been able to ascertain, is barren of any reference to the matter to which I have thus briefly referred.

* Read before the American Laryngological Association at its eleventh annual congress.

ACUTE MULTIPLE ADENITIS (SEPTIC?);
 (EDEMA OF THE LARYNX, WITH SPONTANEOUS CURE.
 LARYNGOSCOPIC APPEARANCES.*

BY S. W. LANGMAID, M. D.,
 BOSTON.

ON Tuesday, April 30, 1889, I was summoned by telegraph to visit Mrs. R. at a city sixty miles from Boston. The case was supposed to be one of amygdalitis. I arrived at the hotel at which Mrs. R. was temporarily staying, and when she had been ill for eight days, at half-past five in the afternoon.

The patient, a lady about forty years old, was in bed, propped up by pillows, very restless, with anxious expression, breathing with difficulty, with dry, croupy inspiration. There was no lividity of the face, or other indication of impending suffocation; but I was informed that during the preceding twenty-four hours there had been at times danger of strangulation. The submaxillary glands were much enlarged, as were those lower down in the vicinity of the larynx. The whole region of the neck was swollen, and the tissues in front of the larynx and trachea were thickened. The pulse was feeble, but not rapid. The temperature was 99° F. The voice was fairly loud and clear.

Mrs. R. was able to get out of bed and allow me to make a laryngoscopic examination by sunlight illumination. The mouth and pharynx were normal. There was no enlargement of the tonsils, no membrane, and nothing unusual in the naso-pharynx. The epiglottis was very erect, normal in shape, and only slightly congested. A tumor, apparently as large as a filbert, in which the arytenoids seemed to be incorporated, occupied the posterior arytenoid space, and covered two thirds or more of the glottis. The anterior third of both vocal cords could be plainly seen approximated and scarcely moving during inspiration. Nothing abnormal was discovered in the lungs. My diagnosis was œdema of the vestibule of the larynx, caused by the pressure of the enlarged cervical glands; cause of adenitis unknown, but diphtheria suspected, of which no trace now remained in the throat, mouth, or naso-pharynx.

The attending physician was an irregular practitioner, and had not looked in the throat during the first four days of Mrs. R.'s illness. Another physician had been called the day previous to my visit, who had ordered poultices to the neck, after which the dyspnoea seemed to be slightly relieved. No nourishment had been taken for days because of inability to swallow, but the mouth and throat had been constantly washed and gargled with milk and Apollinaris water. No other treatment seemed to have been used, except hypodermic injections of morphine, which the patient demanded, and which she had been accustomed to take occasionally for attacks of severe headache.

Mrs. R.'s condition seemed most critical. Dr. George W. Gay, of Boston, was telegraphed for, and asked to bring tracheotomy instruments. The patient was closely watched, the throat frequently gargled with milk and water, which seemed to assist in expelling small quantities of viscid mucus, and nine or ten ounces of milk were swallowed. Stimulants were refused by the patient.

I determined to wait as long as possible before attempting any operative procedure, but, should suffocation seem imminent, I hoped to be able to reach and open the laryngeal tumor with a curved bistoury, and, if necessary, afterward open the trachea.

Dr. Gay arrived four hours later, and, having examined the patient, agreed that it was best to delay any operation, as there

* Read before the American Laryngological Association at its eleventh annual congress.

had been no glottic spasm during the day, and the voice remained good. The poultices were continued, and ten grains of quinine and a mixture of chlorate of potassium and chloride of ammonium were given at Dr. Gay's suggestion. Up to midnight, when we left Mrs. R. with her attendants, no change had occurred; but at four o'clock in the morning I was called, with the report that something had broken in the throat. I found that several handkerchiefs had been saturated with a thin mucoid discharge, which was being incessantly hawked up, and which at first was faintly tinged with blood. It was noticed that the dry, sonorous inspiration was more moist in character and less noisy. The patient was informed that through such a discharge great relief would probably be produced, and was again left with her family. The discharge had been so copious that Mrs. R. feared she "would be drowned by it."

Three hours later a laryngoscopic examination was made. It has been said above that at the previous examinations a tumor was seen in the region of the arytenoids and posterior arytenoid space, below which a portion of the vocal bands was plainly visible. Now, nothing could be seen except the erect epiglottis, almost doubled upon itself laterally, and from the recess so made muco-purulent matter welling up.

The dyspnoea was greatly relieved, quiet inspirations being accompanied by moist bubbling sounds. The swollen neck seemed to be softer.

The patient was left in the charge of Dr. T. C. Morrill, who had seen her the previous day.

Upon my return late in the afternoon, I was disappointed to find the respiration still somewhat noisy, and that there was no change in the laryngoscopic appearances. The epiglottis was still bent laterally upon itself, and purulent matter was still flowing. There had been constant expectoration during the day and one attack of vomiting, during which half an ounce of pus had been ejected. Milk had been taken in fairly large quantities, and the patient's strength had not diminished.

A restless night was passed, but with increasing freedom in inspiration. In the morning the neck was less swollen and softer, and the epiglottis had resumed its normal shape. Pus was seen welling up behind the interarytenoid space. The arytenoids themselves had not regained their normal contour, but were not œdematous. The discharge of pus continued in diminishing quantities for several days. On the seventh day from my first visit Mrs. R. was removed to Boston. The neck had at this time nearly resumed its natural size, but considerable induration of the tissues in the vicinity of the larynx still remained. The interior of the pharynx and larynx showed only slight alteration of color. On May 10th Mrs. R. was able to be moved by special car to her home at Baltimore.

This case has seemed worthy of presentation to the society for several reasons:

1. On account of the obscurity with regard to the origin of the adenitis with consequent œdema.
2. The unusual sequel to such a condition—viz., the spontaneous rupture of the œdematous tumor and safe evacuation of its contents, together, probably, with that of a suppurating gland or glands in the neighborhood.
3. The opportunity which was afforded by laryngoscopy for observing the exact condition during the dangerous stage of partial glottic occlusion and fixation, as well as the reassuring appearances after the evacuation of the tumor and glands.

When I first saw Mrs. R. I had no doubt that the adenitis was septic from diphtheria. When told that no

membrane had ever been seen or expectorated (I supposed then that careful examinations had been made of the mouth and fauces during the first days of the attack), and the perfectly clean, pale condition of the mucous membrane of the whole upper respiratory tract had been observed, under excellent illumination, I was forced to abandon that hypothesis. The fact that eight years previously a gland had suppurated and discharged on the back of the neck did not help to clear up the mystery of the present acute multiple adenitis. The only history immediately antedating the severe seizure was that Mrs. R. had not seemed quite well for two weeks, and on the day previous had been "chilly" and had a slight "soreness of the throat."

It has seemed, however, to Dr. Gay and myself, since then, that there must have been a very limited diphtheria, all traces of which had disappeared by the eighth day. The account which I obtained from Mrs. R., to whom no mention of diphtheria had been made, after her removal to Boston, lends support to such a view, for she said that at the commencement of her illness she had a "sore throat," and she saw on one side of the back of the throat a red place on which there was a white covering. The urine was free from albumin.

The spontaneous rupture of an œdematous swelling in the region of the larynx is probably rare. Intralaryngeal puncture sometimes, but tracheotomy generally, is required. Intubation, if instruments were at hand, would be in such a case as this the remedy *par excellence*, it seems to me. The importance of laryngoscopic examination in this case can hardly be overestimated, for if it is granted that the rational signs were enough to guide the surgeon to the diagnosis and conduct of the case, it will not be denied that the added information with regard to the situation and nature of the obstruction made the instant and succeeding treatment more exact, and added greatly to the knowledge of the pathological conditions.

AN ŒDEMATOUS FORM OF DISEASE, OR SEPTIC ŒDEMA OF THE UPPER AIR-PASSAGES.*

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DURING the winter of 1886 I reported to the Medicochirurgical Society of St. Louis the existence of an unusual form of throat disease which had been more or less prevalent for two years, and which at that time prevailed to such an extent that it could not fail to attract attention. I called it then rheumatic or œdematous sore throat, from the great similarity of certain of the symptoms to those seen in the ordinary angina rheumatica. I also drew attention to the fact that in certain of these cases patches of exudation were seen in the throat, and I was inclined to consider that these conditions had a common cause. The exudative cases bore a certain similarity to the diphtherias, but the surrounding

condition of the throat was utterly dissimilar from that seen in diphtheria. At that time, however, I had not given these cases a sufficient study, and waited to see what further observations would develop. In 1887 Dr. Boislinière, my assistant in the clinic at the Post-graduate School of Medicine, published in the "St. Louis Courier of Medicine" a short article entitled "Œdematous Sore Throat," in which he embodied my views and treatment of the disease. During the winter of 1887 and 1888 these cases were very numerous, disappearing almost entirely during the late spring and summer months, appearing again in the early part of the past winter. About the 1st of January of this year they again appeared, and they have continued during the spring, through the present month. During March and April the cases were unusually prevalent, and the disease might well be called epidemic. I call it epidemic rather than endemic, as I have seen many cases that have originated in different parts of the country. I have also learned from Dr. Seiler, of Philadelphia, that he has seen similar cases in that portion of the country. During the prevalence of this disease I have noticed the disappearance of the ordinary forms of catarrhal inflammation of the throat—a condition which is usually so prevalent during the spring months.

The appearance of the throat in this œdematous form of disease is characteristic, and will always define the disorder. In all cases we find on inspection a pale, swollen, œdematous condition of the fauces. In some this is limited to certain parts, while in others the entire mucous membrane of the fauces is involved in the process. The œdema is a solid œdema, and differs from the usual serous œdema seen in catarrhal inflammations. To the touch the mucous membrane feels firm and waxy, lacking the moist elastic sensation of a normal mucous membrane. A peculiar glistening appearance is very marked in many cases, and I have seen the palate, when the light was thrown at an angle against it, appear as though set with minute brilliants. In the majority of cases the soft palate is the site of the œdema. In some it is so much swollen and thickened that speech is impaired, suggesting the change caused by paresis of the palate. A lesser degree of œdema is more frequently seen. In these cases the action of the palate is not much impaired, but on phonation the uvula is seen to retract with ridges and folds in the mucous membrane, suggesting the impression that the muscles are unimpaired, while the mucous membrane is infiltrated with some foreign substance. The palatine folds and the lower edge of the palate appear at times translucent at the edges. The naso-pharyngeal space and the nasal mucous membrane are also found in the same condition. The nasal mucous membrane presents most frequently a swollen, very dry appearance. In two cases the naso-pharyngeal space was almost obliterated through the great œdema of the membrane. The epiglottis and the different parts of the larynx are also affected. I have seen four cases where the epiglottis was converted into a solid, swollen mass, and in very many cases the œdema of the posterior surface of the larynx could be quite distinctly seen with the mirror. In four cases the true cords were markedly œdematous. They ap-

* Read before the American Laryngological Association at its eleventh annual congress.

peared as swollen, glistening bands with an almost translucent appearance. In another case one, and in still another both false cords were found swollen and enlarged. The two cases in which the solid œdema of the larynx was seen in life died suddenly with symptoms of spasm of the glottis or sudden laryngeal stenosis. In both these cases the post-mortem examination showed a swollen, œdematous condition of the epiglottis and interior of the larynx, which did not subside with death. A peculiarity of this œdema is the rapid and great increase which seems to take place from slight causes. In some cases it disappears almost as rapidly as it arises. In others, however, it lasts for months, slowly subsiding, showing, however, in its course acute exacerbations with an increase from time to time.

An enlargement or swollen condition of the veins is a marked appearance in all cases. Most frequently this is the case with the palatine veins, especially those at the root of the uvula and the pharyngeal veins. Sometimes this venous enlargement is so great as to cause purpura-like spots, and the mucous membrane appears mottled, the dark spots contrasting with the pale surrounding surface. In two cases I have seen these purpura spots in the trachea, and both these cases showed recurrent hæmorrhages. In one case an enlarged vein was distinctly seen on the cord. A peculiar secretion is characteristic of this disease. In some cases it is scanty and in others it is very profuse. It is characterized by its viscid, gluey nature. When it is taken on the finger and the finger pressed against the thumb and again separated, a glue-like thread is formed, which is so tenacious and elastic that the fingers can be widely separated without breaking the thread. Ulceration is occasionally seen, and when it occurs there seems to be a loss of tissue by absorption rather than by destruction. In one case a large ulcer occupied the lateral and naso-pharyngeal wall, extending toward the wall of the pharynx. In three cases the soft palate presented a loss of substance. In one the anterior pillar of the palate was perforated, forming a button-hole. Ulceration of the epiglottis was seen in four cases. In one the loss of substance originated at three different spots, and continued until the greater part of the epiglottis had disappeared. In another the ulceration extended through the mucous membrane, but did not involve the cartilage. The former case died of tuberculosis, and in the latter the ulceration healed and was followed in the course of three weeks by a similar ulceration of the soft palate. In this case there was no history of syphilis.

In certain cases we find, in addition to the œdematous condition, patches of exudation in different parts of the throat. In some cases this is limited to minute white or yellowish-white points, and in others patches of varying extent are formed. These are seen most frequently on the tonsils, both of which are usually involved. These patches on the tonsils usually commence as isolated points, and the exudation in some cases coalesces, forming a complete covering of the tonsil. In other cases we find the whitish points in the pharynx and on the pillars of the palate. In one case there was a small patch on the right tonsil and an elongated patch on the pillar of the palate, the soft palate partially covered, and the uvula enveloped as a finger in a

glove. This patient recovered after a six weeks' illness. In another a patch existed on the hard palate, two distinct patches on the epiglottis, with one on the posterior surface of the larynx. This patient had a syphilitic history. The patches disappeared in four weeks. These patches have a yellowish-white appearance, are usually firmly attached to the membrane, and can not be removed except by force, when a bleeding surface remains. If untouched, they gradually fade away, the exudation growing thinner until they only show a thin opaline patch resembling a mucous patch. Some of these cases would be called diphtheritic, but the symptoms of the disease and the appearance of the throat must preclude such a diagnosis. In all, in addition to the patch of exudation, we find the surrounding tissue in a condition of œdema, and more or less of the sticky, gluey secretion is present.

In six cases I have seen spots of mycosis; in three they were on both tonsils and on the base of the tongue, with points on the posterior pharyngeal wall. In three the two tonsils were alone involved. Microscopic examination showed *Leptothrix buccalis*. Glandular enlargement of the neck is frequent.

In most cases the glands are simply swollen, but in others they become enormously enlarged. In some cases they are hard and tense, and gradually soften and disappear as the patient recovers. In one case, with massive œdema and ulceration of the lateral pharyngeal wall, the submaxillary glands attained the size of a goose-egg. This varied in a remarkable manner from time to time, both in size and hardness, at times becoming so soft as to suggest suppuration, changing again to the hardness of a sarcomatous gland. In this case the glands on both sides of the neck were involved. In two cases suppuration of the glands took place.

The symptoms of œdematous sore throat are both constitutional and local. The constitutional symptoms are most prominent and are often present when the local symptoms are wanting. The attack commences suddenly in a condition of previous good health. There is a feeling of intense languor and weakness, slight exertion producing an unusual fatigue; the mind is dull and a condition of apathy prevails; a condition of mental inertia is often present. During the day there is great drowsiness, while insomnia is frequent in the same individual. An unusual and excessive irritability is often noticed. Pain is general throughout the body, the muscles and joints being specially involved. A headache of varying intensity is present. It is usually frontal but sometimes it is occipital. In many cases it is simply a dull, heavy feeling of fullness in the head; in others it is intensely violent, with throbbing pain. Pain in the back, especially about the sacrum, is a characteristic symptom; from this point it radiates toward the hips or into the pelvis. Occasionally the site of pain is more in the lumbar region. Pains in the chest are frequent. The pain is often intensified at night. In many cases we find a soreness or tenderness about the muscles, with a hyperæsthesia of the skin, this soreness being limited to single groups of muscles or a circumscribed spot, with a constant tendency toward a shifting of the site.

The joints have a feeling of stiffness, and in some cases there is great swelling and tenderness of single joints, resembling inflammatory rheumatism. There is this difference, however, that the pain and the tenderness of the joint may only remain a few hours, and then it will entirely subside, to again appear in another joint. There is also the absence of the general constitutional symptoms of the rheumatic affection. Cramps, especially in the fingers, legs, and toes, are often experienced. Some patients complain of a tingling or numbness of the extremities. Black stools are very frequently seen, and in a few cases bloody urine was passed. The general appearance of the patient is suggestive of the disease. The skin is of a dirty-white hue, suggestive of chronic malaria. The superficial veins are engorged, and this is especially seen in the veins of the forearm and in some cases in enlargement of the temporal veins. The blood is of a dark Prussian blue, and this change often attracts the attention of the patient. The fever varies greatly in different cases. In the simple œdematous form of the disease the temperature rarely rises above 101°. This may remain for twenty-four to thirty-six hours. This is often preceded by a chilly sensation; in three cases a decided rigor was seen. In exudative cases the temperature may rise to 103° F., or even more. A typical case commences with a chill, a rise of temperature which may continue for twenty-four to forty-eight hours, which then subsides, continuing at about 100° to 101° during four to six days. I have noticed that where the exudation is confined to the tonsils the fever continued rarely more than twenty-four hours, but where it involved the pharynx it continued from five to seven days. The pulse is always increased in rapidity; it is full, soft, and compressible. Sweating is a very prominent symptom. This occurs especially at night, and is accompanied by a chilly sensation resembling true night-sweats. The disease is certainly in a measure contagious. I have often seen different members of a family develop it in succession. Sometimes one member will show the simple œdema and others will have the exudative patches. In the children's ward of the Mullenphy Hospital all the children were affected, and all recovered.

The local symptoms vary in different cases and depend on the part of the throat involved. In some they are very marked, in others they are entirely wanting. When the nasal mucous membrane is affected, a complaint is made of a feeling of fullness and dryness of the nostrils. When the palate and palatine folds are involved there is frequently pain on swallowing, and it is especially noticeable that the pain is greater on swallowing saliva than on taking food. In fact, the taking of food in some cases seems to produce a certain amount of relief. In cases where there is great œdema of the palate the pain is often so intense as to almost preclude the taking of nourishment. One patient told me that every attempt at deglutition produced a sensation as though a knife were drawn across the throat. But this intense pain is only found in cases where the œdema is great. In the large majority of cases the pain is slight and complaint is made more of a feeling of dryness or a fullness of the throat. It is noticeable that the pain is always increased toward evening and during the night, di-

minishing, and in some cases almost entirely disappearing, during the morning hours, to be again experienced at the same hour of the afternoon the next day. In œdema of the posterior larynx there is a feeling of fullness with constant desire to swallow, and a sensation as though a foreign body was lodged at this point. Again, a sense of oppression is often experienced in the upper portion of the chest, and there is a constant tendency to sigh. In some cases I have seen an intermittent character given to the pain, it occurring with greater intensity on alternate days. In œdema of the vocal cord there is always more or less change of the voice. It seems to lose in strength and clearness. In two cases, although the speaking voice was little impaired, the singing voice had entirely disappeared. With the subsidence of the œdema the patients who are professional singers regain their voices in the natural strength and purity. The characteristic ropy, gluey secretion is sometimes so profuse that constant hawking and expectoration are necessary. This is also found even with scanty expectoration, the sensation being produced by the feeling of fullness. Hæmorrhages are quite frequent; usually they are small in quantity and recur frequently. In three cases I have seen profuse hæmorrhages in which the expectoration of blood continued through several days. The blood is usually black, clotted, and may be mixed with a viscid secretion, but often it is simply a pure dark blood. When the larynx is affected, cough is a frequent symptom. It may occur in an incessant hack. In other cases there are violent paroxysms. The cough at times bears a great resemblance to the cough of whooping-cough, the inspiratory stridor being especially marked.

Without proper treatment the acute symptoms in the œdematous form will continue from three to five days. A comparative state of well-being then comes in which the symptoms are greatly mitigated. This is followed by another attack. I have seen cases who have suffered in this manner for four months in whom the acute exacerbations occurred about every three weeks. In cases with exudation I have seen the patches remain from one to six weeks.

Diagnosis.—The œdematous form of the disease can only be confounded with that due to a catarrhal inflammation. The pronounced constitutional symptoms and the characteristic appearance of the throat will differentiate the conditions.

In the exudative cases, where the exudation patches are prominent on the tonsils, we should naturally think of simple follicular amygdalitis. The general symptoms are in a measure similar and the appearance of the tonsils is not unlike that of amygdalitis. Close inspection, however, will show the minute white points in different parts of the fauces, and the condition of solid œdema, which is always present, is not found in simple amygdalitis. The tonsils are never enlarged to the degree seen in amygdalitis, and, instead of the red, hyperæmic condition, we find rather an unnatural pallor of the membrane. The characteristic sticky secretion is also wanting. When the exudation is extensive, especially when it is on the pharyngeal wall and the palate, the close similarity to mild diphtheria will give us a good deal of anxiety. The presence of the solid œdema of the fauces

and the character of the secretion will help the diagnosis. The behavior of the patch seems to me to give positive and definite information toward a diagnosis. I have never seen paralysis follow in these cases of exudative pharyngitis.

The treatment of the œdematous form of disease of the throat is very simple. It consists in saturating the system with the benzoate of sodium. I usually combine it with the liquor ammonii acetatis. I have found it to act as a specific remedy in the disease. As a local remedy I have found the bicarbonate of sodium in conjunction with a little carbolic acid to act as a soothing, pleasant gargle. Under this treatment the symptoms promptly disappear, and the patient recovers. In some cases, when the joints are prominently involved, the addition of the salicylate of sodium seems to be of service. Although quinine moderates the symptoms, I have never found it to produce permanent relief. After the subsidence of the acute symptoms I have found the *mistura ferri et ammonii acetatis*, often combined with arsenic, to be very useful in overcoming the anæmia which always remains after the acute attack has subsided.

From a study of these cases of œdematous disease of the throat, I am convinced that we are considering a constitutional disorder rather than a local disease, and that the condition of the throat is simply one of the manifestations of a general condition. In a paper I am preparing for publication I have endeavored to show an analogous condition existing in the lungs to that seen in the throat. The solid œdema found in the lungs resembles in many respects that seen in the fauces. I maintain that this analogy is strictly legitimate, from the fact that I have seen this condition of the fauces to exist in connection with the pulmonary form of disease, and also from the fact that there are frequent alternations of the two forms in the same individual. Post-mortem examinations have proved that the pathological changes in the body are such as are only found in septic conditions, and cultures of the lung tissue show the presence of various micro-organisms.

Hence I would consider the pathological changes in the throat and lungs to be simply manifestations of a general septic condition, dependent probably on some pathological change in the blood.

The appearance of the disease in certain portions of the year, followed by its complete disappearance for many months, leads me to think of an atmospheric influence in producing it. The recognized fact that patients suffer more and are more prone to relapses in cloudy or rainy weather and improve in the bright sunshine, seems to strengthen this supposition. I have thought at times that it might be a manifestation of influenza, a disease which, as is well known, sweeps over the country in waves and then entirely disappears. The symptoms of influenza, as portrayed by Graves and others, bear a striking similarity to those seen in this septic œdema. Its long continuance during several years is, however, not in accordance with the epidemics of influenza which have been described.

Albuminate of Quinine.—"This salt is formed in yellowish-white flakes. It is insoluble in water alone, but soluble in water containing hydrochloric acid; also in a solution of pepsin. It is tolerated by the most sensitive stomachs."—*Druggists' Circular and Chemical Gazette.*

Correspondence.

LETTER FROM LONDON.

Report of the University for London Commission; Intercollegiate Lectures between the London Medical Schools; the Treatment of Asphyxia by Submersion.

LONDON, June 4, 1889.

THE Report of the University for London Commission has at last appeared. As was expected, the commissioners have decided against the request of the Royal College of Physicians and the Royal College of Surgeons for a charter to grant degrees in medicine and surgery, and they are, on the whole, in favor of modifying the existing London University so as to make it meet the admitted needs of the present day. The following extracts show that the commissioners have fully appreciated the causes of the agitation on the subject: "No city in the United Kingdom or, perhaps, in the world offers so good opportunities for clinical instruction as London. Clinical instruction forms an important part of the training of medical students. It is therefore important that a large number of these students should spend a considerable time in London before they are qualified to practice, and they would naturally so spend it unless there was some cause tending to draw them away from London. But medical students are generally anxious to obtain the degree of Doctor of Medicine. A man who can call himself a doctor of medicine possesses certain practical advantages over a man, however distinguished, who can not. . . . The great majority of London students, if they take a degree at all, take it elsewhere than in London, and that is a fact which the highest representatives of the medical profession view with regret. It is injurious, not to the men themselves only, but to the public. In addition to these considerations, the educational wants of the largest and most populous city in the world appear to make it a proper seat for a great teaching university. In such a university the medical faculty would have advantages not perhaps attainable anywhere else in the same degree."

In another part of the report the commissioners suggest that an interchange between the different medical schools, based on the plan of the combined intercollegiate lectures at Oxford and Cambridge, might be introduced with advantage. In this, no doubt, they are quite right; their suggestion would appear to be intended to apply only to the more strictly scientific subjects of the students' curriculum, but I am not sure that it might not be made to apply to all the subjects with advantage. Something of the kind has indeed already been attempted, for some years ago four schools—St. George's, Charing Cross, Middlesex, and the Westminster—arranged to send all their students who were candidates for the preliminary scientific examination of London University to the Science Department of the South Kensington Schools, with what success I never heard. For clinical instruction I would have the schools remain, as at present, quite distinct, but, for the purpose of systematic lectures, I am sure a great deal of amalgamation might be brought about with the greatest benefit to the students.

The Royal Medical and Chirurgical Society is about to reopen the question of the best method of treating the apparently drowned; it is now some thirty years since a committee of that society investigated the question with great care and issued a report which has ever since been a leading authority, and the time seems, in the opinion of some, to have arrived when the whole question might be reconsidered, so Dr. Howard will have a chance of having his "direct" method directly compared with the older and more popular plans.

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POST-MORTEM SWEATING.

SUCH a condition is reported in the "Lancet" for May 25, 1889. The patient, a man of forty-two, had for nine months been suffering from albuminuria. Microscopical examination of the urine showed no casts, but abundant urates. There was no dropsy or ascites. Ten days before his death he was suddenly seized with uræmic coma and left hemiplegia, which last persisted unchanged until the end. The temperature was normal, with the exception of the last few days, when it ranged from 102° to 104° F. This elevation continued till within six hours before death, when it steadily sank. Treatment to produce diaphoresis gave slight results. The skin, though not absolutely dry, was almost destitute of sweat during the earlier days of the fatal attack. Hypodermatic injections of pilocarpine were given on four occasions, the dose being gradually increased. The last injection (of one third of a grain) was given three days before death. This produced a fair amount of sweating for about twenty minutes, but was not repeated, on account of the excessive bronchial secretion it caused. Forty-eight hours later, just before death, the patient began to perspire profusely. This continued till the end, even when the surface temperature was decidedly abnormal. While the body was receiving proper care, nothing unusual was noted, but sixteen hours later it was noticed that the sheets and pillows were absolutely saturated with sweat, and the skin felt moist and clammy. Thirty hours after, the sweating had ceased and the linen was drying. Post-mortem discoloration was well marked, even when the body was first seen.

The late Dr. Carpenter is cited as stating that post-mortem secretions are known to take place, and as explaining their occurrence by saying that the capillary circulation may be maintained for a short time after somatic death has taken place. The only instances in which this form of circulation seems to have been observed in the adult, says the author, Mr. John A. Cones, are those given by Dr. Bennet Dowler, in the "New Orleans Medical and Surgical Journal" for January, 1849. Rapid death from acute disease had been the rule, and the capillary circulation continued for a few minutes, but not for any lengthened period. It seems to have been Dr. Carpenter's opinion, the author continues, that the material for post-mortem secretions might be supplied by the blood in the vessels at the time of death, the gland cells themselves continuing their molecular life some time after the suspension of the general circulation. Mr. T. Bell ("History of British Reptiles," quoted by Mr. Cones) says that when he was engaged in the dissection of the poison apparatus of a rattlesnake, the animal having been dead for some hours and the head taken off immediately after

death, the poison continued to be secreted, as the dissection proceeded, in quantities sufficient to be wiped off with a sponge.

These theories of post-mortem sweating scarcely satisfy the author of the paper, who thinks it reasonable to suppose that the glands and lymph spaces were fully charged with fluid, as the patient was sweating freely up to the time of death, and mechanical pressure may have forced this fluid out. Experiments on the influence of irritation of the chorda tympani on the secretion of the submaxillary gland show that the secreting cells do not derive the materials for their secretion directly from the blood, but indirectly through the lymph spaces that surround the alveoli. These spaces are reservoirs. If filled during the experiment, the gland will continue to secrete after the head is removed from the body. It might seem that the quantity was too great to be thus accounted for, but the number of sweat glands and lymph spaces all over the body is considerable. In a person of ordinary stature, according to Sir Erasmus Wilson, there are about seven million sweat glands, with an aggregate length of perspiratory tubing of about twenty-eight miles. Is it, the author asks, unphysiological to suppose that a rise of temperature after death, as well as post-mortem sweating, may be due to an autogenetic stimulus in the cadaver which excites the governing nerve centers into action? Certain cells or groups of cells (according to Carpenter's theory) die at longer or shorter intervals, those higher in the scale of development ceasing their function first. The highest center regulating thermic functions is the thermotaxic or inhibitory. This is destroyed before the lower, which it controls; the thermogenic and thermolytic centers then come into action, producing a rise of temperature. Experimenters have arrived at the conclusion that the secretion of sweat is entirely under the influence of the nervous system, and independent of modifications in the circulation (Straus). In limbs of animals previously rendered exsanguine, profuse sweating has been produced by stimulation of the main nerve-trunk, and in recently amputated limbs; and also on stimulation of the medulla oblongata after ligature of the aorta. Abundant sweating has been induced by faradaic stimulation of the nerves of a limb, while injections of pilocarpine in the dead subject, or into a recently amputated limb, have given negative results.

SYPHILIS FOLLOWING TATTOOING.

RECORDS of an outbreak of this kind form the substance of an interesting paper in the "British Medical Journal" for May 4, 1889. Twelve hearty, fresh-complexioned young men of robust health, all soldiers, between the ages of eighteen and twenty-two years, who had been in service from three to twenty-four months, acquired syphilis through the carelessness of a former comrade who used saliva in the process of tattooing, or put the needles in his mouth. Marked and unmistakable syphilitic manifestations appeared within from thirteen to eighty-seven days. Instead of the one chancre, that usually follows poisoning produced in the ordinary way, there were, in one case, four distinct rupial ulcerations within the area of a

circle an inch and a half in diameter. The severity of the secondary phenomena bore no relation to the number of points of ulceration. The most intractable case presented only one ulcer. Although both arms were sometimes tattooed, and on the same day, in no instance did ulceration occur on more than one arm. Five of the men presented a distinct rupial form of the disease, and one had secondary rupial lesions at the seat of the chancre. In no case in which rupial ulceration formed was there merely a single sore; they ranged from two to four in number. In no case did rupia appear on other parts of the body.

The author of the paper, Surgeon F. R. Barker, states that he had always regarded rupiæ as tertiary manifestations, never having seen them appear at the seat of a primary lesion. Finding in the article on syphilis, by Mr. Jonathan Hutchinson, in the "Dictionary of Practical Surgery," the statement that rupia never occurs very early among secondary phenomena (its usual place being from six to twelve months after the chancre), the author sent a photograph of one marked case to Mr. Hutchinson, from whom he received the following reply: "I have repeatedly seen primary chancres, when occurring on the naked skin, assume more or less closely the features of rupiæ. You will see one of those figured in my 'Clinical Illustrations,' in connection with syphilis from vaccination, in which the sores have much this aspect. I may admit that I have never seen the simulation quite so clear as it is figured in your photograph." The rupiæ, when seen, were of the form of rupia prominens, resembling limpet shells, and, falling off, they left a plane, not an excavated, base. There was uniformity in the symptoms in about the following order: Enlarged glands, rash, sore throat, condylomata, and mucous tubercles.

CIDER AND CANCER.

It is the fate of many of the good things of this life to be accused of producing evil. Blessings, like public benefactors, have their revilers. Our immediate progenitors, who seldom or never partook of the luscious tomato, for instance, handed down to us the opinion of their time that "love-apples" caused cancer when eaten. This opinion uttered to the millions of tomato-eaters of to-day would only provoke a smile of pity for the speaker. But another article of food has recently been incriminated as a cause of cancer, although not on this side of the Atlantic, we believe. No medical authority has given support to such an hypothesis so far as we know, but a writer in the "Normandie médicale" has taken pains to show that the popular fear in regard to cider is unfounded. One of the best points in Dr. Prieur's article is the exposition and denunciation of the custom of certain cider-makers of putting impure water with the crushed apples when in the press, to dilute the cider and render it less alcoholic. He quotes from Dr. Denis-Dumont, who saw producers of "cider" take greenish water from a barn-yard pool near by and pour it into the cider-press. And this, it is to be presumed, was in Normandy, where the cider has the name of being the best in the world. In their igno-

rance the makers of this vile, not to say death-dealing, mixture believed that when the apple-juice fermented all impurities would be eliminated. It is not surprising, therefore, that such cider might produce disease of some kind, though not cancer.

But from such a solution of ptomaines and such a cultivation of microbes to the pure juice of the apple or to that juice diluted with pure rain water (which is quite a legitimate mixture) there is a decided step. To accuse well-made cider of favoring the invasion of human tissues by cancer is *prima facie* absurd. Nothing short of precise laboratory experiments will convince the scientific mind of the present day that cider is to this extent noxious. And, besides that, we must now *chercher le microbe* in the cider capable of producing carcinoma, just as in cases of suicide or murder it has long been the custom to *chercher la femme*. Now, who would be bold enough to accuse the innocent *Saccharomyces cerevisiæ* of transforming itself into the formidable *Bacillus Scheurlenii*? Who, with the bright memory of delightful champagne suppers still fresh in his mind, could insinuate that the minute furnisher of the *mousseux* nectar was double-faced and double-natured, and caused excruciating suffering as well as exquisite pleasure? No; let cider, like tomatoes and other good things, be taken plentifully and fearlessly, and let the magnesian and seleuitic waters that are sometimes added to cider be more dreaded than the pure juice of the apple.

MINOR PARAGRAPHS

OIL OF EUCALYPTUS IN HEADACHE.

THE "Medical News" of July 20th has an article on the use of eucalyptus in headaches of various types, after other means had failed, recording a measure of success that will induce many physicians to make a trial of this drug in rebellious cases. The authors of this article, Dr. Morris J. Lewis and Dr. G. E. de Schweinitz, of Philadelphia, report eight cases, all benefited, and refer to others treated by Dr. Weir Mitchell and Dr. Sinkler with satisfactory results. The dose given was five minims, from four to six times daily. In one case twenty minims were given as an attack was coming on, and, in the patient's opinion, prevented it. The best results were obtained in cases where the dose was taken early. The authors suspect that a malarial cause existed in some of their cases, and their first success was in a case of that nature, the drug being prescribed for malarial trouble rather than for the neuralgic symptoms. The "sudden and surprising improvement" in this instance led them to make further use of the drug, even in cases where there was no malarial history. Their impression is that it will be found that headaches of the congestive type will be the ones best suited to the use of eucalyptus. They did not succeed with the drug in one case where the attack was brought on by an indiscretion in diet, although the patient obtained relief at other times; and in one case of ciliary neuralgia failure is reported; also in two others where there was organic disease of abdominal viscera.

A MALPRACTICE SUIT.

A SUIT for malpractice against a New York physician having been tried before a jury, \$1,000 damages were found against him. In the General Term, however, the case has taken a turn in the physician's favor. Presiding Justice Van Brunt wrote the opinion, in which Justice Daniels and Justice Barrett con-

cur. After [reviewing the testimony, the judge says that the case seems absolutely barren of proof that there was "any neglect or want of skill on the part of the defendant" whereby any permanent injury had been inflicted upon the plaintiff. A new trial was ordered. The plaintiff received an injury in 1886 by being struck by an ice-cart and knocked down. Not having progressed so favorably as he wished, he brought suit for damages on an allegation of unskillful treatment.

DEAD DOGS FOR MEDICAL STUDENTS.

SOME medical students having asked the Mayor of New York to allow them a certain number of condemned dogs from the pound, for experimental purposes, that functionary, as the newspapers report, has duly considered the request, also the protest of a certain humane person who dreads the cruelty to which the dogs might be subjected by the students, and has come to the conclusion that he will allow the students a supply of dead dogs, but no live ones. This generosity is about equal to Artemus Ward's as exemplified in his answer to a person who had asked the privilege of seeing his show without paying—"No, you can't go in without paying, but you can pay without going in."

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 6, 1889:

DISEASES	Week ending July 30.		Week ending Aug. 6.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	30	10	45	14
Scarlet fever.....	32	3	27	4
Cerebro-spinal meningitis....	4	4	3	2
Measles.....	40	5	36	2
Diphtheria.....	82	29	70	19

The Waldo Memorial.—The citizens of Cairo, Ill., have caused the construction of a monument at Mound City in memory of Dr. Roswell Waldo and of his services in that community during the yellow-fever epidemic of 1878.

The Virginia Medical Society will hold its twentieth annual meeting at Roanoke, beginning on September 3d, Dr. E. W. Rowe, of Orange, presiding.

The University of Michigan.—The medical department has met with a loss in the resignations of Dr. Donald Maclean and Dr. Frothingham, formerly the professors of surgery and of ophthalmology. Dr. Charles B. Nancrede, of Philadelphia, has been invited to take the chair of surgery.

New Hospitals.—A new hospital will soon be erected at Ann Arbor, Mich., a grant of \$50,000 having been made for that object by the last Legislature. The city has voted to give \$25,000 also, and will issue bonds to that amount. At Memphis, Tenn., a new public hospital will be built under the direction of St. Mary's Roman Catholic church.

The Lehigh Valley Medical Association will hold its ninth annual meeting at Glen Summit, Pa., on Friday, the 16th inst., under the presidency of Dr. George N. Best, of Rosemont, N. J. Among the titles in the programme are "Evolution in the Causation of Disease," by the president; and "Railroad Shock and its Treatment," by Dr. Francis X. Dercum, of Philadelphia.

An Infants' Summer Hospital has been established by the citizens of Rochester, N. Y., at Charlotte, on Lake Ontario. Dr. E. M. Moore is president of the association, and Dr. George

W. Goler is the attending physician. Any child suffering from intestinal trouble is treated free of charge. There are accommodations for twenty patients, and many children who would otherwise have received no medical treatment have been cared for.

The Minnesota State Board of Health.—Dr. J. H. Phillips, of Preston, Minn., has been appointed to the board of health, to succeed the late Dr. D. W. Hand, of St. Paul. Dr. Phillips was a member of the State Legislature in 1888.

Recent Deaths.—Dr. Oscar J. Coskery, of Baltimore, died on July 5th, of general tuberculosis. He was born near that city in 1843, and graduated from the medical department of the University of Maryland in 1865. He served in that year as an assistant surgeon of volunteers. He was a member of the State Medical Faculty and of the staff of St. Joseph's Hospital, and in 1872 became professor of surgery in the College of Physicians and Surgeons, of Baltimore. He was a frequent contributor to the journals, chiefly on surgical subjects. He was the author of an essay on hospital construction.

Dr. William Thomas Ennett died on June 15th, a very short time after the expiration of his term as president of the Medical Society of North Carolina.

Dr. Charles Corning Lathrop died in Denver, Colorado, on May 28th, aged forty-three years. He had been a resident of Denver for nearly all his professional life, and was well known from having been for several years the permanent secretary of the State Medical Society.

Dr. Thomas W. Battle, of Columbus, Ga., died on June 16th, aged seventy-three years. He was a graduate of the University of Pennsylvania, in the class of 1840.

Surgeon-General Francis Day, of the India Medical Service, died at Cheltenham, England, on July 10th. He saw active service with the Madras Army, but became identified with the study of the fishes of India. He was made the inspector-general of the fisheries in India, and was the best-known naturalist in that country. He was the author of valuable and standard books on ichthyology.

Dr. Charles Elam, of London, died on July 9th. He was the author of eleven books and numerous minor articles, dealing chiefly with nervous, mental, and psychological questions. His book entitled "A Physician's Problems" was the best known of his essays.

Dr. Lewis A. Sayre has lately received a diploma of honorary membership in a St. Petersburg medical society.

The Deutsche Poliklinik.—At a recent meeting of the executive committee of the German Poliklinik the following figures were presented showing the work done since the opening of the institution, in 1883: Total number of patients cared for, 60,711; of consultations, 189,163; of prescriptions, nearly 123,000. The report also shows that for the last three months there have been more than 1,000 new patients a month. It will not be long, the committee believe, before they will have to appeal to the public for a larger building.

Italian Medical Societies.—Two medical meetings, according to the "Raccogliatore medico," will be held simultaneously in Padua from the 16th to the 21st of September: the thirteenth congress of the Italian medical societies and the third congress of the united societies for hygienic research.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from July 28 to August 3, 1889:*

BRECHEMIN, LOUIS, Captain and Assistant Surgeon. By direction of the Secretary of War, so much of Par. 1, S. O. 159,

July 12, 1889, A. G. O., as directs his return to his station at the close of the encampment of the Illinois National Guard is amended to direct him to report in person not later than August 20, 1889, at Fort Robinson, Nebraska, for duty at that place. S. O. 174, Headquarters of the Army, A. G. O., July 30, 1889.

HALL, WILLIAM R., Captain and Assistant Surgeon. Granted leave of absence for ten days. Par. 5, S. O. 80, Headquarters Department of Dakota, July 27, 1889.

ROBINSON, SAMUEL Q., Captain and Assistant Surgeon. The leave of absence granted by Par. 11, S. O. 165, from these headquarters, is hereby extended ten days. Par. 8, S. O. 172, Headquarters Division of the Atlantic, July 30, 1889.

MAUS, LOUIS M., Captain and Assistant Surgeon (Fort Porter, N. Y.), is hereby granted leave of absence for twenty days on surgeon's certificate of disability Par. 2, S. O. 173, Headquarters Division of the Atlantic, August 1, 1889.

HARRIS, H. S. T., First Lieutenant and Assistant Surgeon. By Par. 9, S. O. 176, A. G. O., August 1, 1889, the leave of absence granted in S. O. 140, A. G. O., June 18th, is further extended two months.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 3, 1889:*

BRYANT, P. H., Assistant Surgeon. Ordered to temporary duty on ironclads, Richmond, Va.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the two weeks ending August 3, 1889:*

HUTTON, W. H. II., Surgeon. When relieved at Mobile, Ala., to assume command of the Service at Baltimore, Md. July 23, 1889.

PURVIANCE, GEORGE, Surgeon. When relieved at Baltimore, Md., to assume command of the Service at Philadelphia, Pa. July 24, 1889.

GASSAWAY, J. M., Surgeon. Ordered to New Orleans, La., for temporary duty. August 2, 1889.

GOLDSBOROUGH, C. B., Surgeon. Granted leave of absence for thirty days. July 29, 1889.

VAUGHAN, G. T., Assistant Surgeon. Orders to Norfolk, Va., revoked; to proceed to Cairo, Ill., for temporary duty. August 1, 1889.

GROENEVELT, J. F., Assistant Surgeon. Relieved from duty at Gulf Quarantine Station; ordered to Mobile, Ala., for temporary duty. August 3, 1889.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eleventh Annual Congress, held at Washington on Thursday, Friday, and Saturday, May 30 and 31, and June 1, 1889.

The President, Dr. ETHELBERT C. MORGAN, of Washington, in the Chair.

Report of the Removal of a Supernumerary Tonsil.—

The PRESIDENT read a paper on this subject.

Dr. J. N. MAOKENZIE, of Baltimore: In connection with the case reported by Dr. Morgan, I would briefly refer to a case

which I reported some time ago, an account of which has not yet been published. It was a case of tumor of the pyriform sinus, which was removed with the wire snare. Upon microscopical examination, it was found to be composed of the lymphoid tissue so graphically described by Waldeyer and his pupils. I have on several occasions removed growths from the tonsils, and once from the anterior faucial pillar, but I am sorry to say they were not examined microscopically. They would doubtless have shown a similar structure to that found in the pyriform sinus.

Dr. D. BRYSON DELAVAN, of New York: This subject has been so thoroughly and carefully worked out by Dr. Morgan that it has given me considerable interest to try to recall a similar instance. While I remember to have seen it stated that supernumerary tonsils may occur, yet, after a careful search through the literature, I was able to find but the two cases referred to by Dr. Morgan. I have seen several cases of tumor of the tonsil, which were distinctly pedunculated and easily removed, but which proved to be largely of a fibrous structure. It seems possible that these fibrous tumors, which are not uncommon, may be degenerated supernumerary tonsils. In the case reported there had been considerable growth, the tumor increasing markedly in size during three or four years. It may be that these fibroid tumors begin as supernumerary tonsils, and later, becoming rich in fibrous structure through the irritation to which they are exposed, assume the character of the former growth.

The Relation between Facial Erysipelas and Erythema on the One Hand and Intranasal Pressure on the Other.—

Dr. G. W. MAJOR, of Montreal, read a paper with this title. (See p. 148.)

Dr. J. O. ROE, of Rochester: I have seen a number of cases of erythematous rash about the face which was due to the cause described by Dr. Major. This was well pronounced in a case recently seen—that of a girl twenty-three years of age. She had an erythematous rash upon the face, very red, and studded with blebs and blotches, giving a very conspicuous appearance. She had been treated with constitutional remedies by two or three distinguished men, without benefit. They afterward referred her to me, and I found in both nostrils that the middle turbinated bodies projected firmly against the septum. I removed the projecting portions, rendering the passages free, and there was an immediate subsidence of the erythematous trouble, and it has now entirely disappeared. I can not agree with Dr. Major that erysipelas is due *per se* to intranasal pressure. Erysipelas is caused by a distinct germ, and is an infectious disease. Those who have intranasal difficulty with erosions are more liable to become infected by these disease germs. As we know, erysipelas may come from the infection of a scratch, but the latter is quite different from the erythematous rash which may be excited by simple local irritation.

Dr. MAOKENZIE: I can not agree with Dr. Major in regard to the silence of medical literature upon this subject. I think that it has been pretty fully discussed in the last five or six years. I know that some centuries ago, in the time of Willis and Sylvius, this erythema of the nose and face was discussed in separate chapters, and was attributed to intranasal changes. I have myself discussed the subject pretty thoroughly in Wood's "Reference Hand-book," published in 1887. The Germans have reported cases of so-called erysipelas and erythema of the external nose and cheeks as exceedingly common. I have seen erythema very often, but I have not seen a case of true erysipelas. The so-called cases of facial erysipelas from intranasal changes seem to me to be rather an accentuation of the act of blushing. It is a sort of chronic blush. It can hardly be called true facial erysipelas.

Dr. DALY: I am not a believer in the theory of intranasal pressure. I believe that the conception of the theory is not good, and consequently the super-structure is on a bad foundation. The evils, whatever they may be, that we recognize as coming from so-called intranasal pressure, are evils that in reality arise from intranasal turgescence. There is no question in my mind that the condition which my friend Dr. Mackenzie speaks of as an accentuated blush, a prolonged blush of the parts—a very pretty idea—is, when divested of all superfluous mystery, largely due to hypernutrition from a turgescence and permanently dilated and enlarged blood-supply.

During the past year or year and a half I have had under my professional care two cases. One of these was a very well marked case of erythema of the skin of the nose and extending out upon the cheek. I was, however, not consulted by the patient on account of the skin disease, but for a condition which he spoke of as intranasal catarrh. I resorted to prompt surgical measures, removing the turgid condition of the intranasal structures—in a word, cutting off the blood-supply by destroying the blood-vessels; and, as a result, the condition of which he complained as catarrhal was removed, and subsequently also the erythema disappeared. I met the man, who was from a neighboring town, a few weeks ago, and did not recognize him. The turgid and red condition of the nose had disappeared, and he presented quite a respectable appearance and was altogether much pleased with himself.

The second case was of a somewhat similar character in a young lady. She had erythema of the external surface of the entire nose, with a horseshoe-shaped patch around it of the same kind extending down to the outer angle of the mouth on each side. She had been told that it was due to menstrual disorder. I lost sight of that opinion after finding that there was sufficient intranasal deformity to warrant interference for stenosis. After relieving surgically almost complete stenosis of one naris and partial stenosis of the other, the erythema disappeared. In this case, by the way, there was copious hæmorrhage, almost causing death, after one of the operations with the saw. I had said to the patient that a little bleeding would do no harm. She went to her home, two miles and a half in the country, and there bled copiously, but assured her friends that the doctor had said that bleeding would not matter. She bled well into the night, when my assistant was sent for, and found her almost *in articulo mortis*. She, however, recovered, and is now perfectly healthy and a handsome girl, with good nasal respiration, with no defect of skin or complexion.

I do not believe in chronic facial erysipelas, and think that the term is a misnomer. I regard erysipelas as essentially an acute inflammatory disease of a specific type, and depending oftener upon an acute constitutional disorder than a local one, and as diverse from the condition of chronic erythema as possible—in fact, I don't believe such a thing as chronic erysipelas exists at all.

Dr. F. I. KNIGHT, of Boston: Without repeating what has been said, and well said, upon this subject, there is one point which the gentlemen seem to have overlooked. This is in regard to another condition which may serve as a cause of erythema of the nose and face. It is one which I always search for and frequently find—namely, necrosis. When a patient presents himself to me with a localized strong blush on the nose or cheek, I look for necrosis, just as in a case of unilateral profuse purulent discharge I look for a foreign body or necrosis. The worst cases that I have seen have been where there was decided necrosis. Here the erythema has been removed by giving free vent to the purulent discharge and keeping the parts clean.

Dr. DELAVAN: In four cases of this affection that I have seen the erysipelas has been very severe. The first case was a

girl, seventeen years of age, who had recurrent attacks of erysipelatos swelling over the alæ of the nose and extending over the cheeks. These attacks recurred every two or three weeks. I thought that some necrotic process might be the cause of this condition, but I failed to find it. I found, however, marked turgescence of the nasal mucous membrane. The condition was treated topically, and in time, with the subsidence of the catarrhal trouble, the erysipelatos attacks disappeared and did not recur.

Another case was that of a girl, fifteen years of age, who suffered from adenoid hypertrophy at the vault of the pharynx. She had had recurrent attacks of erysipelas. That this was true erysipelas was proved by the fact that the inflammation was very severe, that the nose swelled to a large size and remained thickened for a number of weeks, and that, with the subsidence of the attacks, there appeared a distinct herpetic eruption, as often occurs in erysipelas. In this case no necrosis was present. There was, however, extensive engorgement of the nasal mucous membrane, with some pressure in the neighborhood of the middle turbinated body on both sides. The patient had improved under treatment. About two weeks after her last attack, a younger sister, sleeping in the same room, suffered from the same condition. In the latter case there was also some turgescence of the intranasal mucous membrane.

Dr. HARRISON ALLEN, of Philadelphia: I think if Dr. Seiler were present he would tell us of the connection between nasal disease and acne. It has been my experience to see in two cases attacks of furuncles follow treatment of the nose. In a third case these furuncles occurred without surgical treatment of the nasal cavities. In one of the cases there was distinct flushing of the face and nose. I looked upon this as a mild form of cellulitis. I see no difference between a diffuse form of cellulitis of the face arising from intranasal causes and that which follows abscess of a tooth. Under the latter circumstances we frequently see cellulitis of the entire face. I think that Dr. Major meant erysipelas and not cellulitis, so that these remarks refer more to what was said by previous speakers than to the paper itself.

There seem to be several different conditions—first, a distinct erysipelas; second, diffuse cellulitis in various forms; and, third, a chronic determination of blood to the face dependent upon chronic irritation.

Dr. S. W. LANGMAID, of Boston: I recently saw a case of erysipelas in Dr. White's clinic in Boston, and he remarked that in such cases we should look for the cause in the nose. The dermatologists have therefore not lost sight of this fact.

Dr. MAJOR: In my paper I have avoided theory and confined myself simply to facts. My opinion is based upon clinical observation that led me to look for these cases. I have looked for them and I have found them. These have been cases of erythema and erysipelas under medical treatment by men high in the profession, but without benefit—cases that have been under the care of dermatologists for months without improvement, and they have been cured by simple removal of the pressure. That is about as straight evidence as to cause and effect that any one need want. I do not think that turgescence will produce erysipelas or erythema unless it causes pressure. In regard to necrosis, this is common enough in syphilitic cases. The erythematous condition may continue for months. I have not mixed up erysipelas and cellulitis. One of my patients had fourteen attacks of erysipelas. All commenced in the nose and extended over the body. In regard to the literature, I would say that I consulted a number of books, but saw no reference to this matter. I am sorry that I overlooked Dr. Mackenzie's observations in Wood's "Hand-book."

Acute Multiple Adenitis (Septic ?); Œdema of the Larynx, with Spontaneous Cure.—Dr. S. W. LANGMAID, of Boston, read a paper with this title. (See p. 149.)

Œdematous Disease, or Septic Œdema, of the Upper Air-passages.—Dr. W. C. GLASGOW, of St. Louis, read a paper on this subject. (See p. 150.)

Dr. T. A. DE BLOIS, of Boston: I have been much interested in Dr. Langmaid's paper, particularly with reference to the possibility of diphtheria being coincident with the condition he describes. Last year I was called in consultation to a case of supposed œdema of the larynx. The epiglottis and the arytenoids were œdematous, not so much at the first examination as subsequently. I punctured the epiglottis and got a slight discharge of blood, and in twenty-four hours the place of puncture was filled by the exudation of diphtheritic membrane. The œdema then progressed, and the arytenoids became so large and obstructed respiration so much that they were punctured, and again extension of the membrane occurred. There was no discharge of pus at all. Sometimes marked œdema will precede a very slight exudation. As Dr. Langmaid has said, there might have been exudation which had passed away when he examined the throat; but I have never seen œdema follow exudation.

Dr. DALY: The condition which Dr. Glasgow has so well described is somewhat new to me. The doctor spoke to me in regard to it a year ago, and asked me if I had seen such conditions. At that time I had not; but last autumn, when the bad weather began, there was in Pittsburgh an endemic of the class of cases to which Dr. Glasgow has referred. A number of them fell to my professional care, but by far the larger number were treated by the general practitioners. I did not regard this swollen condition of the fauces so much as œdema, as we understand that term, as that it was a subacute inflammatory condition of the mucous membrane, with attendant swelling. There was a sufficient number of these cases that had superficial and very thin diphtheroid patches in various parts of the fauces to warrant me in my opinion that they were cases of a diphtheroid disease of the throat. I was confirmed in this opinion by the subsequent occurrence of glandular enlargement, which came on in nearly every case, and was located in the deeper regions at the sides of the throat, sometimes in other parts of the body, and in one or two instances in the axilla. In short, I regarded this endemic as a diphtheroid disease, with exaggerated local symptoms scarcely warranted by the local deposit of false membrane or fibrinous deposit; but, while there were exaggerated glandular symptoms, there was a rather amenable condition of the constitutional symptoms.

The calomel treatment, which I am so fond of employing in cases of true diphtheria, and which has stood me in very valuable service—much more so than any other plan of treatment that I have ever adopted—did not give the results which I am in the habit of observing from it in true diphtheria. These cases were usually manageable, but sometimes slowly so, with a treatment something like this: Three or four times a day, three to four grains of Dover's powder, with two or three grains of quinine upon a full stomach, and then the use, both locally and internally, of a solution of the chlorides—chlorate of potassium, Squibb's preparation—with dilute hydrochloric acid in syrup or, preferably, in glycerin. This was used as a gargle in hot water, and a moderate dose taken every two or three hours.

After the local disease subsided, the glandular enlargement was usually treated with an ointment of veratrine, or simple lauolin, and the use of the iodides. Much handling of these glands was resented by increased pain and swelling. I believe that this is a modified form of diphtheria, with exaggerated local symptoms, but a more amenable condition of the constitutional symptoms, and depending upon a modified form of the germ or

infection. It seems to me that it has sprung up in the Mississippi and Ohio valleys, and has radiated from those regions.

Dr. J. C. MULHALL, of St. Louis: I think that a great deal of credit is due to Dr. Glasgow for being the first to recognize that there is a peculiar type of inflammatory trouble of the upper air-passages sweeping over the country. I can confirm, from experience in St. Louis, the existence of this peculiar class of cases. The last acquaintance that I saw before I left was a gentleman who came to the train to tell me that, for the third time, he had tenderness in the throat. He came to me two weeks ago with what he thought to be the symptoms of ordinary quinsy. I found these white patches of exudation on one tonsil, and a great deal of pain without œdema. I regarded the case as one of ordinary follicular amygdalitis, and treated it in the ordinary way. I gave him aconite and a gargle of tincture of guaiacum. In forty-eight hours he again presented himself with an abscess of one tonsil, but the usual relief did not follow the evacuation of the pus. He again returned in forty-eight hours, and then was present this peculiar type of œdema. It involved the uvula, the anterior and posterior pillars on the right side, and extended down the pharyngeal wall on the right side. He then took my advice and went to bed. The treatment which was then adopted seemed to have a marvelously rapid effect in relieving the trouble. It was the old-fashioned antiphlogistic treatment. The inflammation seemed to be of a rather active type, the temperature being from 100° to 103°. The treatment consisted in the application of very hot poultices to the side of the throat every half-hour, the administration of Norwood's tincture of *veratrum viride*, and antipyrine. Saline purgatives and scarification were also employed. This treatment had a marvelous effect. He recovered, but subsequently the throat again became sore, and exactly the same thing occurred. The same treatment was pursued, and the symptoms subsided in twenty-four hours. When I left St. Louis he had been well for four days, but, as I have stated, he came to me to say that, for the third time, symptoms of irritation of the throat had appeared. Some time ago I saw another gentleman with the same sort of an attack, which subsided, under the treatment mentioned, in forty-eight hours without any recurrence. I have also observed the glandular implication which is very unusual in ordinary sore throat. I saw one of Dr. Glasgow's patients on Monday. He has been suffering since December 15th, and it is only within the last month that the glandular enlargement has begun to recede. His was one of the cases in which ulceration took place. It is possible that the case described by Dr. Langmaid, and probably the case of Allen Thorndyke Rice, belonged to this class, having involved the larynx and produced acute œdema. I have not seen any of the cases in which there has been laryngeal involvement, although, curiously enough, during the last winter I have seen two cases of acute typical laryngeal œdema from erysipelas. With Dr. Daly, I think that this affection originated in the Mississippi Valley, and has radiated to other parts of the country.

I should like to say a word in regard to the pneumonia which has occurred in connection with these cases. I was recently in the biological laboratory of Dr. Bramer, of St. Louis, and he showed me the results of some cultivation experiments from this form of pneumonia, side by side with the cultures from the ordinary pneumococcus. The growth was entirely different, although the gross examination had shown interstitial pneumonia in both instances.

Dr. S. HARTWELL CHAPMAN, of New Haven: While expressing my admiration for the exhaustive analysis and close observation of the symptoms of this disease which is the subject of Dr. Glasgow's paper, I can not but differ with him as to the character of the disease itself. It is, I am sure, but another and not

unusual development of diphtheria. We are not obliged to seek in the Western States for these peculiar phenomena, for they are quite as common developments of diphtheria in the Eastern, and I feel confident that I am giving the experience of laryngologists in the Middle and Southern States as well.

A case which occurred in my practice during the spring of this year will illustrate the close connection between the ordinary forms of diphtheria and this peculiar form of which we are indebted to Dr. Glasgow for collecting the interesting symptoms. In the first week in March I treated a lad of ten years, in a family consisting of parents and two children—this lad and a boy-baby of about eighteen months. This case was one of mild typical diphtheria with well developed tonsillar and pharyngeal membrane extending to the brim of the larynx, with moderate glandular enlargement, considerable exhaustion, and moderate rise in temperature. The case was treated with quinine, stimulants, and mercurials, and ran an ordinary course of about ten days, with no bad results following. On the fourth or fifth day of this attack my attention was called to the younger child, who was found to have a dense swelling of moderate size directly under the chin, with rise in temperature and the appearance of being very ill. The same treatment was adopted in this case as in the other, with the addition of hot fomentations to the glandular enlargement. No membrane could be observed in the throat, and indeed the mucous membrane seemed to be in a perfectly healthy state. There was no hoarseness and no dyspnoea.

Notwithstanding all preventive efforts, the glandular enlargement continued to increase, extended to other glands, and finally produced a uniform infiltration of all the tissues of the neck. This occurred rapidly, so that by the end of the fifth day the appearance of the little patient was very peculiar. From the ears to the clavicles, and extending almost to the shoulders, the swelling was one uniform smooth mass, into which the face and chin seemed to have sunken. With the gradual increase of this infiltration, dyspnoea appeared and became finally very alarming. The process of deglutition ceased on the second day, and the patient was nourished *per rectum*. It seemed likely that suppuration had taken place, so that I made several deep incisions in the sublingual region. This operation was followed by rather copious hæmorrhage, but no pus was found and the symptoms were not at all relieved. An O'Dwyer tube No. 2 was then inserted into the larynx, although with very great difficulty owing to the infiltration. This was left *in situ* four days, during which time the infiltration so rapidly subsided that the conformation of chin and neck again became evident. By the eleventh day the patient was again able to swallow liquids. By the fifteenth day convalescence set in. During the course of the disease there was no membrane to be observed, and the mucous membrane of the pharynx and mouth retained its healthy appearance. The peculiarity of the case was the development of enormous infiltration into all the tissues of the neck, forming a dense, hard, inelastic swelling. During convalescence moderate suppuration of the sublingual gland took place. As far as it is possible to judge, this seemed to be a case of modified diphtheria of the general type of the disease so ably described by Dr. Glasgow.

Dr. CHARLES E. SAJOUS, of Philadelphia: It has been my good fortune to see several of these cases, and the remark made by Dr. Chapman that they are not limited to the West is exemplified by the fact that Dr. Seiler described a number of them before the German Medical Society of Philadelphia a few months ago. The first case that I saw of this affection was in a young man from New Jersey. He had been exposed to the contact of no case of the kind in the neighborhood. I was struck with the amount of pain and the severity of the general symptoms which

accompanied the throat trouble. The appearance of the throat did not resemble the condition seen in diphtheria. Instead of the yellowish, leathery membrane generally present in diphtheria, there were small white patches, probably twenty or thirty in number, covering the pharynx and tonsils. Around these patches was a narrow areola of redness which gradually disappeared to again increase toward a neighboring patch. The vault of the pharynx was slightly involved. There was slight œdema of the soft palate. The temperature was raised throughout the entire course of the attack (102.5°). The case appeared at first to be one of follicular pharyngitis, but the general symptoms were such that I made up my mind that it was an affection with which I was not acquainted. There was redness of the fauces and slight tinnitus aurium. The patient complained of incessant pain in the back and in both legs. After trying a number of remedies, he was placed on benzoate of sodium, suggested by the remarks of Dr. Seiler, which were reported to me by a member of the German society who was present when the paper was read.

I saw another case in Wilmington to which I was called in consultation. This was in a child about two years and a half of age. The case much resembled that reported by Dr. Chapman. The glands were greatly enlarged—sufficiently so, in fact, to warrant the intention of the attending physician to freely open them, fluctuation being present. The knife was not used, however, but the child was placed under minute doses of the bichloride of mercury. The glandular swelling rapidly disappeared and the child got well. The appearance of the throat and the general symptoms were about those found in the case from New Jersey.

Dr. DELAVAN remarked that this discussion was a timely one, coming as it did in connection with a recent celebrated case. He referred to a patient in this condition whom he had seen suddenly die from heart failure. Other cases, apparently similar, had been occasionally reported. He believed that they were analogous to those described by the older French writers and by Sir Morell Mackenzie as "acute œdematous laryngitis," and more recently by Senator, under the name "acute infectious phlegmon of the pharynx." The speaker thought that the possibility of the disease being diphtheria had not been satisfactorily eliminated. In view of the dangers attending it, he urged that the affection be more carefully studied and explained, and he thanked the reader of the paper for the valuable light which he had thrown upon it.

Dr. LANGMAID: Dr. Glasgow's cases seem to me quite different from the one which I reported, in which the œdema was the result of pressure and not necessarily a symptom of the disease which caused the adenitis. I thought that the case which I have related was of sufficient interest to bring before the society, because it was almost diagrammatic. The neck was swollen even from the jaw to the clavicle. The short history of illness made me expect to find membrane or an ulcerated patch from which membrane had been discharged. I found a perfectly clean throat. I can not conceive of an adenitis as extensive as this in a patient of the age of this one, coming on as suddenly as it did and disappearing so suddenly, that was not septic. I believe that there was diphtheria in this case, but, as the history of the first eight days is not known, I can not speak positively. There was no œdema of the pharynx or fauces when I examined the patient. It also seemed to me that the spontaneous evacuation of pus from some gland, as occurred in this case, must be very unusual.

With regard to the cases spoken of by Dr. Glasgow, it has seemed to me that, with the remains of a general practice clinging to me, if these cases had occurred in Boston, I should have seen some of them. I do not recall any such case, and, so far

as I know, they have not been presented to the societies. For some years we have had conditions in Boston which, with the constant presence of diphtheria in certain sections, would render the occurrence of a general epidemic very probable. It has not occurred, and it has seemed to me that, for some reason, the atmosphere of our city is not suitable for the spread of diphtheria. This is possibly the reason that we have not seen these bastard cases, such as Dr. Glasgow has described.

Dr. GLASGOW: There is only one point to which I need refer, and that is in regard to the connection between this form of disease and diphtheria. No one could possibly consider the œdematous form as diphtheritic, and the question could only occur when the exudation is present. In my earlier observations I thought the exudative cases might be diphtheritic. In one case, a young girl of seventeen, the whole palate and tonsil was covered with exudation. I thought that it was a case of diphtheria, and placarded the house as the law exacts. As I watched the case I became convinced that it was not diphtheria. I called in one of our ablest physicians, and at first he said that it was diphtheria, but, after watching the case for a few days, was convinced that it was something else.

The history of the exudation is not that of a diphtheritic patch. It never comes away in a mass, but gradually fades away, growing thinner and thinner day by day. It is not surrounded by the inflammatory zone seen in diphtheria. That diphtheria may be ingrafted on such a condition of the mucous membrane I am fully convinced, since I have met with it in several cases. The œdematous condition of the mucous membrane seems to furnish a fertile culture soil for the development of cocci.

NEW YORK SURGICAL SOCIETY.

Meeting of April 24, 1889.

The President, Dr. L. A. STIMSON, in the Chair.

Successive Fractures of the Patella.—Dr. R. ABBE presented a patient who had first sustained a fracture of the patella in 1871, in that instance by muscular violence, having slipped and suddenly caught himself. His patella had been fractured a second time by a blow from a truck, in the same year. In January of 1888 he had again slipped and fractured the bone, at a different point, however, from either of the previous fractures, and in this case the union had been effected by wiring. On May 4th of the same year he had fractured the bone for the fourth time by muscular violence, and in this case also in a different place from where the bone had recently been wired together. The result had been a wide gap which had, of course, shown no tendency to unite, and made the limb quite useless. The speaker was in some doubt as to whether he should rewire the fragments, as that might only result in a stiff knee. However, previous to the last fracture the patient had been able to bend the knee but little, and the fracture itself had been caused by a forced bending of the limb. The lower fragment, of a crescentic shape, could be brought nearly into apposition with the large upper fragment. A knee-cap could be gained by wiring or circular sutures. The limb had been a good one, practically, from 1871 until January, 1888. If wired, the limb would still be as useful as it now was. Up to May it had been in a splint.

Dr. LANGE thought an operation advisable, because it would improve the usefulness of the limb, and the knee joint might retain the same amount of motion now possessed by it.

The PRESIDENT thought the operation could not do more than give a stiff joint.

Actinomycosis in the Right Hypogastric Region.—Dr. F. E. LANGE presented as a case of an exceptional nature that of a man of twenty-five years who, so far as he had understood his

physician to say, had suffered six months ago from an attack, resembling perityphlitis in its symptoms, which had lasted three or four weeks. Three or four weeks before being brought before the society the patient had suffered from pain in the region of the liver, an enlargement had appeared at that point, there had been a high temperature and some chills until two weeks before the present time, when, with the appearance of a swelling in the epigastric region, the pain had become lessened. Two days before he had seen the patient at his office with his physician, Dr. Kerr, but, being still uncertain as to the nature of the disease, had decided to make an exploratory puncture at the house of the patient. At first glance the result of this procedure had seemed to be negative, but by using a syringe a few opaque minute granules had been brought away which had made him suspicious of actinomycosis. The microscope had revealed the true nature of the disease, as the operation done some days later had shown. It had involved the deeper portions of the abdominal wall in the epigastric region, and could be followed to a great depth between the diaphragm and liver. The disease occurred probably not so very rarely in this country. Within the last two years he had seen four cases. In one of these cases it had developed on the neck; in another, in the retro-mediastinal space, involving the ribs and diaphragm; in a third one, on the back. The diffuse dense hardness gave the parts in which this disease occurred a peculiar feeling to the fingers. To the eye the mounted specimen showed small, white-yellowish corpuscles, with fine radiating threads passing out from scattered centers. There had been scarcely any formation of pus, even as viewed under the microscope. The patient had lost in flesh and become run down. The question arose in his mind whether a perityphlitic affection may not have been really caused by a process of the disease. So far as he knew, actinomycosis near the liver was a very rare affection, the intestine itself being more commonly its seat. In this case it might have spread from the œsophagus.

Dr. FRANK HARTLEY instanced a case which had come under his observation in the Roosevelt Hospital Out-patient Department, in which the disease had been connected with the inferior maxilla, there being also a previous history of carious teeth. The disease in this case had involved the inferior maxilla, and the adjacent tissues of the neck.

Large Ilio-femoral Aneurysm; Ligation of the External Iliac through the Peritoneal Cavity.—The PRESIDENT presented a patient upon whom he had operated successfully for the cure of an ilio-femoral aneurysm of large size by tying the artery through the peritoneal cavity. The aneurysm had first appeared four months before as a small lump just below Poupert's ligament, and had increased in size at first slowly but of late very rapidly, until it had measured five inches in length and four inches in width. Toward the last, pulsation had been marked, and there had been a large harsh murmur over the central part of the tumor. He had rejected the usual method of operating because of the risk of wounding the sac or exciting its suppuration, and had sought the external iliac artery through the peritoneal cavity. The incision was made along the outer border of the rectus abdominis, and the peritonæum divided for about two inches; then, on pressing aside the intestines, the artery was readily found, exposed by a short incision in the overlying peritonæum, and tied with catgut. Two weeks later, on removal of the dressing, the wound was found entirely healed, and the aneurysm solid and somewhat diminished in size.

On the Extirpation of Certain Non-pedunculated Pelvic Tumors.—Dr. F. E. LANGE read a paper with this title. (To be published.)

Dr. ABBE remarked on the immense value of Trendelenburg's posture, as it prevented loss of venous blood which

would otherwise occur by withdrawing it into the upper extremities largely. He had made use of this posture in operations for removing uterine fibromata with the result of greatly decreasing the hæmorrhage from the pelvic vessels.

The PRESIDENT asked, in regard to tamponing the cavity with iodoform gauze, how large and long the strips were which Dr. Lange used, and what the length and thickness of the column of gauze formed was.

Dr. LANGE answered that these varied with the surface to be covered. Ordinarily he used six or eight strips two feet long and three fingers wide. The end of each was left outside. He usually arranged it so that there were two lateral strips packed in on each side, and two more in the center. He had found that traction made on large areas of a surface packed with iodoform gauze which formed a continuous mass, when it became desirable to remove this, was painful, and that the procedure of removing it was tedious, and one requiring some force. On the other hand, small strips resulted in limiting the traction necessary to get them away from any one point. He wished opinions as to the occurrence of iodoform poisoning after intraperitoneal operations.

Dr. ABBE said he had had many cases where he had employed iodoform tamponade, and had afterward found iodine in the urine, but never with toxic development of mania.

The PRESIDENT spoke of the danger that ligatures *en masse* might slip when they included much peritonæum. In such ligatures the peritonæum was sometimes drawn in from all sides under considerable tension, and this tension, especially when aided by movements of the patient, created an evverting strain which favored the escape of the included artery. He recalled an autopsy in which such a ligature had slipped, leaving a circular gap in the peritonæum three inches in diameter, and in its center the vessel from which the fatal hæmorrhage had come. In connection with Dr. Lange's remarks on removal of the uteri, he showed a uterus and ovaries removed by abdominal section by the method described by the speaker in the "New York Medical Journal" for March 9, 1889 (p. 277), in which he exposed and tied the uterine arteries in continuity. He also secured the ovarian arteries without including the peritonæum in the ligature; he divided the broad ligament after placing a clamp on its outer border, and then easily found the arteries on the surface of section, stripped back the peritonæum, and tied them.

Dr. ABBE thought there was a principle of some importance involved in the history of the wound of the intestine occurring in the operation just described by Dr. Lange in his paper. The speaker had once done an operation on a torn intestine, and applied sutures and a tampon of iodoform gauze on top of these, but after two days the wound had evidently opened, as a fæcal fistula had formed. If no tampon had been applied to the sutured peritoneal surface which might have slipped in among the other intestinal coils, he was inclined to think that more lymph would have been exuded to spread over and cement the sutured wound.

Dr. LANGE replied that he had considered that question, but had not dared to act as Dr. Abbe proposed, because he had not been able to make a thorough closure of the opening in the intestine in the instance referred to. He had been able to make only one row of sutures, lest he should narrow the lumen of the gut too much. The iodoform tampon was safe even where we expected loosening of the sutures and escape of the fæces, for it furnished a channel along which the extruded matters could come out. Around such a tampon a plastic exudation formed a wall which shut off the peritoneal cavity. The patient so operated on was already much weakened, and, as there was no certainty of a union taking place, it was better to be prepared for the worst.

Dr. A. G. GERSTER said he had listened to Dr. Lange's paper with a pleasure chiefly due to its clear enunciation of the principle of always making an incision of a length sufficient to permit of an easy inspection of the viscera to be handled. We saw some records published telling of such and such a tumor removed through a small incision. He thought all such operations were done at great risk, as being done without the guidance of the eye. The finger, sometimes called the surgeon's third eye, could never, in his opinion, be safely substituted for direct inspection, especially where the latter could be had by the prolonging of the incision to an extent which was relatively without importance as affecting the recovery of the patient. Some writers had dwelt upon the fact that as a matter of statistics it could be shown that the mortality had been greater in proportion as the incisions made at the beginning of operations had been longer. The point here was that the large incision was, in the great majority of cases, not to be blamed for the bad result so much as the serious nature of the operation which the larger incisions preceded. The incisions, necessarily, had only been made of a length more or less adequate to the operation needed, and he believed even more serious results would have followed had smaller incisions been made. When the parts being dealt with lay directly under the eye, not only could bleeding points be seen and ligated promptly, but a variety of other accidents and injuries of the parts could be avoided. The advantages were almost entirely on the side of the ample incisions.

Bony Union of the Patella.—Dr. ABBE presented the patella which he had removed at an autopsy from the body of a man, sixty years of age, who a number of years ago had sustained a transverse fracture of each patella, and had come under the care of Dr. Markoe at the New York Hospital some time after the accident, who, finding the union that had occurred in each not sufficient to enable the man to walk, had wired both together, putting an interval of three months between the two operations. As proved by the autopsy three years later, this patient had possessed very little kidney structure at that time, as only a shell of kidney tissue had been found at the autopsy. Consequently the tendency to suppuration had been very marked, and both wounds had suppurated some time after the operation. Nevertheless, both patellæ had firmly united by bony union. Both joints had become ankylosed. The wire had been removed from one, but was still present in the other patella.

Dr. T. M. MARKOE said that when the patient had first come under his care there had been a separation of about an inch between the fragments of each patella. In both the operations there had been great difficulty in approximating the fragments, owing to the rigid contracture of the quadriceps. This had been divided at several points in each operation, and even then the approximation had not been satisfactory until the wires were pulled home. In the first operation the wound had healed under one dressing. In the second some suppuration had occurred owing to the opening of the synovial cavity in making the division of the quadriceps. The wound had finally healed, however, with the exception of a small sinus which had still existed when he was discharged. The recovery in the use of the limb had not been satisfactory, because the patient, a heavy, fat, and flabby man, would not take any exercise, and had persisted in stumping about the ward on crutches. The indications for operation in this case had been enforced by the fact that the man had practically no use of his limbs, since, both patellæ having been broken, he had been unable to bear any weight on either limb when it was flexed in the slightest degree, and had not the other one to keep him from falling.

The PRESIDENT thought the inference ought not to be drawn from such cases that bony union would follow wiring in all

cases; autopsies in cases where this method had been followed had too often shown that the union which had been obtained was not complete.

Dr. ABBE suggested a partial explanation for the successful result in this instance in the fact that the patient had a tendency to a rapid bone formation, and had once been operated on for the removal of an exostosis of the orbit.

An Intraligamentous Cyst of the Broad Ligament.—

Dr. FRED. KAMMERER presented such a cyst which he had removed from a patient, twenty-five years of age, who had given the physical signs of an abdominal tumor. The cyst had lain very near the uterus, and, as the latter was placed very high in the pelvis, the operation was one of some difficulty. He had not been able to enucleate the cyst until he had tied off the arteries, severed the connections with the uterus, and had worked down for some distance along the side of the cyst, nearly to the floor of the pelvis. During the operation he had tapped the cyst and let out a clear watery fluid; sections made after it had been removed had shown that it was in the beginning of malignant degeneration. There had been slight ascites. The case had ended fatally. He had not seen the patient after the operation until the fourth day. Persistent vomiting had set in after the operation, and on the fourth day had increased in violence. There had been no rise of temperature, no tympanites, or tenderness of the abdomen. On removing the dressing, a loop of intestine was found protruding at the upper angle of the wound, where one of the catgut stitches with which he had closed the peritonæum had probably given way. He replaced the gut, but this made no change in the symptoms of obstruction. Laparotomy on the following day gave no clew to the persistence of ileus. Enemata had not even resulted in a passage of gas. The patient died on the eighth day. The autopsy showed that no peritonitis was present, and no mechanical cause for the obstruction was discovered. The case seemed clinically to correspond with Verchère's description of *septicémie intestino-peritonéale*, the main feature of which was absolute constipation. The only rise of temperature had occurred shortly before death.

Operation for Pyosalpinx.—Dr. KAMMERER also presented two specimens, consisting of the tubes and ovaries, which he had removed. The patients were twenty-five and twenty-eight years of age, respectively, and both had recovered. The diseased organs had been matted down on the floor of the pelvis. In both instances the sacs had burst, and their contents had poured freely into the peritoneal cavity, but, after sponging out the latter well, it had been closed. The temperature had not afterward risen above 101° F. In thirty-nine cases in which Gusserow had operated for pyosalpinx, rupture of the tubes and escape of their contents into the peritoneal cavity had occurred in nineteen, and all the patients had recovered. The speaker had never seen any other method of operation used in these cases, or any drainage of the peritoneal cavity, and there had been no bad results. Microscopical examinations and experimental cultivations made with the fluid from tubes distended with pus had in no instance shown the presence of microorganisms. It was a remarkable thing that, after a spontaneous rupture of the tubes, septic peritonitis often occurred. He thought this might be explained on the basis of a mixed infection, the primary pyosalpinx being due to an invasion of the gonococcus. A secondary infection of the sac with one of the pyogenic cocci might perhaps precipitate a rupture, allowing pyogenic material to enter the peritoneal cavity. Bumm had first called attention to mixed infection in pyosalpinx.

A Case of Cerebral Surgery.—The PRESIDENT also presented a small piece of wood and a button of bone removed by trephining from a patient, of whom he gave the following his-

tory: A man of fifty had fallen backward while blacking his shoes, and had hit his head upon the pointed end of a paint-brush, receiving a small scalp wound on the right side of the back of his head. Two days later he began to feel badly, and, after two more days, passed into a dazed condition, with paresis of the left limbs and considerable fever. Six days after the injury he was brought to the Chambers Street Hospital, unable to speak or understand directions given him, but able to feel pain. He was etherized and the wound enlarged. A small foreign body was found driven through the skull; in the efforts made to seize it, it slipped farther in, and a little pus escaped beside it. A trephine was applied over the opening, and a button of rather thin, soft bone removed. The foreign body, which had penetrated the dura, was then picked out, and proved to be the end of the paint-brush, five eighths of an inch long and a quarter of an inch thick, tapering slightly to the point. An ounce of pus escaped from beneath the dura after the opening in the latter was enlarged.

Within two hours after the operation the patient became conscious and intelligent, and the temperature had slowly fallen. Three days after, he was able to sit up in bed and the paresis had diminished, but the aphasia still continued; he was able to understand what was said to him, and recognize the names of things so as to be able to point out anything mentioned which lay within his view. The aphasia was also agraphic. By the next day he had become able to write his name with partial accuracy, and set down numerals called out to him, with slight confusion of the numerals required. Hemianopsia was also present, the right side of each eye being blind. The wound was situated on the back of the head, an inch and a half to the right of the median line and an inch and a quarter above the occipital protuberance, almost diametrically opposite the position habitually assigned to the speech center. The patient was not left-handed. On the other hand, as regarded the hemianopsia, the position of the wound coincided with the results of other observations and of experimentation. The paresis was to be explained as a pressure effect, or as due to a spreading surface inflammation. The wound was three inches behind the most posterior part of the motor area.

A New Urethrotome.—Dr. GERSTER presented a new instrument for the division of urethral strictures. (See vol. xlix, page 683.)

Dorsal Dislocation of the Hip.—The PRESIDENT presented a portion of the structures of the hip joint taken from the body of a man who had died ten days after receiving a dorsal dislocation of the right hip. The rent in the capsule was situated in its posterior portion, close to the labrum cartilagineum, beginning at the cotyloid notch and running upward about two inches. From its upper part a prolongation ran parallel to the axis of the neck along the posterior part of the capsule, in close relations with the tendon of the obturator internus. The labrum cartilagineum was detached, but not separated, from the margin of the acetabulum for an inch and a quarter at its posterior part, beginning at the notch. A piece of bone of new formation, which was attached to the outer surface of this part of the labrum and in close relations with, but not a growth from, the margin of the acetabulum, an inch long and from a quarter to half an inch wide, had been pushed back, and its upper quarter of an inch broken off. The ligamentum teres was completely divided. On the anterior surface of the head of the femur was a groove or contusion parallel with and close to the edge of the articular cartilage, an inch long, half an inch wide, and an eighth of an inch deep, along which the cancellous structure of the bone was exposed. When the dislocation was reproduced, this groove rested on the piece of new bone above described, and had evidently been caused by

pressure against it. The ilio-femoral ligament and the anterior portion of the capsule were untornd. When the dislocation was reproduced, the tendon of the obturator internus was stretched over the upper part of the head. The injury had been caused by a fall through a hatchway.

Fracture of the Patella.—The PRESIDENT also exhibited a specimen of fracture of the patella taken from the other limb of the same patient, of interest as showing the difference between a fracture produced by direct violence and one caused by muscular action. The bone was broken into five or six large pieces, which were held close together by the untornd fibroperiosteal investment of the anterior surface. Knowing that there was rarely any tendency to separation in such fractures, he had left this for the ten days of the patient's survival without any other dressing than the straight posterior splint, and, as the specimen showed, no separation had taken place.

Meeting of May 8, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

Fracture of the Patella.—The PRESIDENT presented a patient who had sustained a fracture of the left patella by muscular action on February 25th, which had been treated by means of the subcutaneous silk suture. The patient's condition two months and a half after the accident was as follows: No independent mobility of the fragments, full active extension, and ability to flex the knee to a right angle. A plaster-of-Paris splint was applied on March 7th, and worn constantly for about three weeks, and thereafter only during the day-time. The patient wore a check-spring. This was not a selected case, but one of fourteen thus treated since the December previous, with an equally good result in almost all. The operation had been performed without ether. The speaker expressed his increasing confidence in this operation, as it had given such excellent results in his hands, but he thought further experience was necessary to determine the measure of risk incurred; however, the avoidance of risk seemed of more importance than the time necessary for recovery.

Acromegalia.—Dr. FRANK HARTLEY presented two women exhibiting the characteristic symptoms of this unusual disease, described by Freund, Erb, and Virchow, which consisted in a progressive enlargement of the bones of the face, arms, legs, hands, and feet, together with hypertrophy of the connective tissue and skin in these same regions. Genital difficulty was a usual though not constant symptom. Menstruation had ceased in one of Dr. Hartley's cases, the patient being then thirty-five. Only twelve cases had been recorded. The measurements in one of the two patients presented exceeded those given by Virchow as having been taken in one of his cases. These cases were to be fully reported on by Dr. Vough at a later period. The cause of the disease was unknown. Erb had said it was impossible to tell the exact cause. Freund considered the condition a species of atavism, a return to the negro type first, and then to that of the ape. The condition gave evidence of retrograde changes. In acromegalia the growth was not limited to the proportions normal to the higher types of mankind, but took on the forms common to inferior races. Persons having this condition resembled negroes at first, and later in life developed in a measure the physical structure of apes. At first the condition expressed itself physically only; afterward there was a tendency to melancholia, which resulted from being constantly watched and talked about; sometimes a kyphosis was one of the symptoms presented. Erb had considered this condition due to a tumor of the hypophysis cerebri, but post-mortems had failed to disclose a tumor in this locality, or any enlargement of the thymus or thyreoid glands.

Book Notices.

A Text-book of Human Physiology. By AUSTIN FLINT, M. D., LL. D., Professor of Physiology and Physiological Anatomy in the Bellevue Hospital Medical College, New York; Visiting Physician to Bellevue Hospital; Fellow of the New York State Medical Association; Correspondent of the Academy of Natural Sciences of Philadelphia; Member of the American Philosophical Society, etc. With Three Hundred and Sixteen Figures in the Text and Two Plates. Fourth Edition, entirely rewritten. New York: D. Appleton & Co., 1888. Pp. xvii-872.

It is natural that the author of a text-book that has proved acceptable for a considerable period of years should content himself, in preparing a new edition, with a simple revision; and certainly the faults in the old edition of Dr. Flint's work were not so many or so glaring as to call imperatively for more than occasional changes and additions. It is therefore all the more to his credit that he has chosen to rewrite it entirely. The result, of course, is more satisfactory, and it is not to be supposed that his readers will fail to appreciate the service he has done them by going through with the task.

In general plan and scope, the present edition does not differ from its predecessors, and it is not notably different in the arrangement of matter, but it presents the facts of human physiology as they are accepted at the present day, stated in such clear language and in such a natural sequence that it is easy for the student to make himself master of the subject. The author's many years of experience as a teacher of physiology in one of our largest medical schools have taught him to know just what the medical student and the medical practitioner want in a text-book of that science; they have enabled him to solve most judiciously the difficult question of drawing the line between the facts and doctrines necessary to be presented and unnecessary details of methods and means of investigation that would add inconveniently to the bulk of such a book and prove little more than confusing to the reader. As it stands, this text-book, we think, has no superior in its proper field. It is trustworthy in its statements, sufficiently comprehensive, free from irrelevant and cumbersome matter, and easily understood.

The publishers are to be commended for bringing it out in so handsome a form. The excellence of their work shows both in the typography and in the press-work. The pictorial illustrations are numerous, well adapted to their purpose, and exceedingly well made.

BOOKS AND PAMPHLETS RECEIVED.

Lectures on Pathological Anatomy. By Samuel Wilks, M. D., F. R. S., Consulting Physician to, and formerly Lecturer on Medicine and Pathology at, Guy's Hospital, and the late Walter Moxon, M. D., F. R. C. P., Physician to, and some time Lecturer on Pathology at, Guy's Hospital. Third Edition, thoroughly revised by Samuel Wilks, M. D., LL. D., F. R. S. London: Longmans, Green, & Co., 1889. Pp. xx-672. [Price, \$6.]

The Physician Himself and Things that concern his Reputation and Success. By D. W. Cathell, M. D., Baltimore, Md. Ninth Edition, revised and enlarged. Philadelphia and London: F. A. Davis, 1889. Pp. 298. [Price, \$2.]

Zwölf Vorlesungen über den Bau der nervösen Centralorgane. Für Aerzte und Studierende. Von Dr. Ludwig Edinger, Arzt in Frankfurt am Main. Zweite umgearbeitete Auflage. Mit 133 Abbildungen. Leipzig: F. C. W. Vogel, 1889. Pp. viii-164. [Preis, 6 Mark.]

First Annual Report of the Methodist Episcopal Hospital, located in the City of Brooklyn, N. Y., covering a Period of Ten and One Half Months, and ending October 31, 1888.

The Washington Life Insurance Company. Historical, Actuarial, and Medical Statistics. New York: Published by the Company, 1889.

Reports on the Progress of Medicine.

SURGERY.

By MATTHIAS L. FOSTER, M. D.

Focal Epilepsy cured by Trephining and Excision of the Motor Centers.—Lloyd and Deaver ("Am. Jour. of the Med. Sci.," Nov., 1888) report the case of a man thirty-five years of age who had suffered from epileptic seizures for fourteen years. Six years before the first fit he was struck on the head with a ball bat, from which blow he became unconscious and was confined to bed one week. The seizures became more and more frequent until he was admitted to the hospital. The fits commenced in the left arm, the fingers were flexed over the thumb, the hand flexed at the wrist, and the forearm flexed on the arm. The head was drawn over to the right side and the right arm and leg became rigid. The head soon began to rotate to the left, the fingers of the left hand relaxed, the mouth opened and was drawn to the left side with the right angle depressed. Clonic spasms occurred in the left arm and in the left side of the face. The pupils were widely dilated and fixed. Consciousness was preserved, at least partially, throughout the fit, which was of short duration. Paresis of the left arm and of the left side of the face followed the fit. At length the fits occurred very frequently, twenty-eight being recorded in a single day. The paresis became very noticeable. The face was relaxed, the angle of the mouth depressed, and the right side drawn over perceptibly. The orbicularis palpebrarum was not involved. The tongue was not paralyzed. The pupils were equal and responded to light and accommodation. The flexor muscles, particularly of the arm, were weakened, but did not present any reactions of degeneration. There was no change in tactile sensibility. Nothing indicative of organic cerebral changes could be found in the fundus oculi. From these symptoms it was inferred that there was an irritative lesion in the region of the junction of the middle and lower thirds of the ascending frontal convolutions on the right side, possibly involving the contiguous portions of the ascending parietal convolutions. The nature of the lesion was not clear. There was no history of syphilis, and treatment with the iodides resulted in no benefit.

A button of bone an inch and a half in diameter was removed, exposing an area on both sides of the fissure of Rolando in the region of the lower and middle thirds of the ascending convolutions. This opening was enlarged with a rongeur forceps, but nothing abnormal could be found in the bone, membranes, or cortex by gross inspection. By means of exploration with the faradaic current a point was discovered back of the fissure of Rolando where faradization produced exactly the same action of the flexors of the left arm which took place at the onset of the fits, and at a point farther in front and below, faradaic stimulation caused marked contraction of the facial muscles of the affected side. At no time during the application of the faradism did contractions of the leg muscles occur. There was no evidence of a subcortical tumor.

Three pieces of brain tissue three fourths of an inch in depth were removed—one, half an inch square, from the point back of the fissure of Rolando, and two smaller pieces anterior to it. After the operation the left arm and the left side of the face were paretic, with occasional twitches of the muscles. These ceased after six days. On the third day there was some stiffness of the fingers, which may perhaps be explained by irritation of white fasciculi during the process of healing. The temperature of the left axilla was at this time one to one and a half degree higher than that of the right. From the sixth to the eighteenth day the patient was not in a normal mental state. He became dull, then lacrymose and incoherent, and a part of the time had maniacal delirium. At times there seemed to be headache. There was much œdema of the scalp, the pupils were dilated, the left side of his face was the more flushed, and when at the worst there was some priapism. Then he began to improve, and by the end of the fifth week was practically well and had recovered some muscular power. Three

months afterward the sensory condition was excellent and the motor was much improved.

Dr. Deaver prefers the lines given by Reid and Horsley to locate the fissures of the brain to Broca's, Lucas-Championnière's, Harss's or Wilson's method, because he considers them simpler and more comprehensible and quite as correct. He thus describes the lines: "First draw a line which runs from the lower border of the orbit through the center of the bony meatus of the ear. To find the fissure of Sylvius, draw a line from a point one quarter of an inch behind the external angular process of the frontal bone to a point three quarters of an inch below the most prominent part of the parietal eminence. Measuring from before backward, the first three fourths of this line will represent the main fissure, and the rest of the line the horizontal limb. The ascending limb starts at the point indicating the termination of the main fissure—*i. e.*, two inches behind the external angular process—and runs from this vertically upward for about an inch. The fissure of Rolando is found by drawing two lines from and perpendicular to the base line to the top of the head, one passing through the depression in front of the ear and the other through the posterior border of the mastoid process. The fissure of Rolando is now represented by a line drawn from the point of intersection of the posterior vertical line with the line connecting the nasal eminence with the external occipital protuberance, indicating the great longitudinal fissure, to the point of intersection of the anterior vertical line with the line representing the fissure of Sylvius, upon either side of which are the ascending frontal and parietal convolutions."

Cerebral Abscess.—Dr. Thomson ("Med. Chron.," December, 1888) reports a case of cerebral abscess cured by trephining. The patient was a boy eleven years of age who had received a blow from a cricket bat a year before, and had since then often complained of frontal pain, especially on stooping. On one occasion the headache lasted a week, and was accompanied by vomiting after every meal. When brought to the consulting-room headache and sleeplessness had persisted for two days, but the pupils, pulse, and temperature gave no indication. Three days later the pulse was 62 and the temperature 99° F. The next day the pulse was 56, the temperature 99° 8', and the patient was unable to articulate. He showed irritability on being touched. The pupils were normal. The skull was trephined over the site of the injury, and a director was passed an inch into the brain substance, but no pus was found. Sixty hours after the operation he returned to consciousness and the cerebral symptoms abated. There was a slight bulging at the wound, which increased so that two days later the wound was reopened and a considerable amount of flaky pus was evacuated. The wound had to be reopened twice subsequently, at intervals of one and two weeks. Eventually the patient made a complete recovery.

Antesternal Dislocation of the Clavicle.—Ducket reports a case of this rare form of dislocation ("Lancet," Oct. 6, 1888). The patient was swimming on his left side and attempted to turn upon his back when he "felt something give way in his neck." When seen there was a marked projection of the sternal extremity of the left clavicle forward, inward, and somewhat downward upon the anterior surface of the sternum, over which the skin was tightly stretched. The dislocation was very easily reduced and the parts were easily retained in position.

Hernia into the Foramen Winslow.—Treves ("Lancet," Oct. 13, 1888) makes a very valuable contribution to our knowledge of this form of internal hernia by an excellent description of the clinical history, operation, and post-mortem discoveries in a case which came under his care. The clinical history indicated a complete intestinal obstruction involving the colon not far from its commencement, and some peritonitis in the epigastric region. An exploratory laparotomy was performed, hernia through the foramen of Winslow was diagnosed, and two or three feet of small intestine was reduced, but another coil could not be reduced, as it was impossible to enlarge the opening through which the bowel had passed. On autopsy, it was found that the cæcum, the ascending colon, and part of the transverse colon had passed through the foramen of Winslow and had become strangulated. The cæcum lay at the extreme left of the abdominal cavity, had forced its way through the anterior layer of the gastro-hepatic omentum, so that the vermiform appendix was lying on the anterior aspect of the lesser

curvature of the stomach close to the œsophagus. The strangulated colon was gangrenous in two places and had ruptured. Outside or beyond the foramen of Winslow the colon bent very sharply to the left and was again sharply bent at the splenic flexure. A few inches of the ileum were found in the hernial cavity, and lay at the seat of stricture behind the colon. Reduction of the strangulated colon could not be accomplished until the hepatic artery, portal vein, and bile duct had been divided. The foramen of Winslow admitted four fingers. It was evident that the cœcum was undescended and had led the way through the foramen. All the other viscera were normal. Only four other cases of this condition appear to be on record.

Amputation of the entire Upper Extremity.—May ("Ann. of Surgery," December, 1888) reports two cases of amputation in the continuity of the trunk according to the mode of Paul Berger. Each case was for malignant tumor of the upper end of the humerus, in which exarticulation would have been evidently insufficient to eradicate the disease. He divides the operation into three stages. In the first he resects the portion of the clavicle between the attachments of the rhomboid and coraco-clavicular ligaments through an incision extending from one inch outside the sterno-clavicular joint along the clavicle to its external end. In the second stage the large vessels are secured. To do this, he cuts across the subclavius, defines the upper border of the pectoralis minor, and ligatures the cephalic vein and any branches of the axillary artery which may interfere. The external anterior thoracic nerve appears prominently and serves as a guide to the subclavian artery. If it is followed upward it leads between the artery and the vein. The artery is tied with two silk ligatures a little more than half an inch apart and divided, and the vein is then treated in a similar manner, but with more care and delicacy, after holding the arm vertically for a couple of minutes to empty it of blood. The supra-scapular vessels which cross the upper part of the wound are similarly divided. In the third stage the flaps are formed and the limb removed. An incision is made from the middle of the first incision down the front of the shoulder, across the inner side of the arm in a backward direction to the tip of the scapula. The pectorales are divided, then the brachial plexus; the arm, which hitherto has been kept down to the side, is drawn away and the latissimus dorsi and teres major are cut. The patient is then rolled on to the sound side, the limb drawn across the chest, and an incision carried from the outer end of the first straight down the back of the shoulder to the angle of the scapula, where it joins the preceding. The integument is dissected up as far as the vertebral border of the scapula, and the limb is severed from the body by dividing close to the bone the muscles attached to it. The flaps so formed he found to fit admirably.

The necessity for so extensive an amputation seldom occurs. Berger collected fifty cases of the operation done by all methods. It is indicated in tumors of the scapula necessitating removal of the greater portion of that bone; in tumors of the upper end of the humerus—if benign, of such size as to render exarticulation impracticable—if malignant, englobing the articulation, invading the scapula or its muscles, the skin over the deltoid, or, above all, the lymphatic glands in the axilla; and in traumatic cases with extensive shredding and laceration of the integument and tearing away of the limb. The causes of death range as hæmorrhage, entrance of air into the veins, shock of operation or injury, purulent infection, secondary hæmorrhage, exhaustion, and sloughing. Pure operative shock is not a marked feature—much less so than at the hip.

Club-foot.—At the meeting of the British Medical Association ("Brit. Med. Jour.," Oct. 27, 1888) a very interesting discussion took place on this subject. Mr. Parker considers the cause to be the environment *in utero*. When the cause begins to act early the deformity will be a very fundamental one, but when it begins to act at a later period the deformity will be less severe. Paralytic talipes is a secondary and accidental condition, differing entirely from the congenital condition. The only constant anatomical condition is the ligamentous hindrance to rectification, which is more or less pronounced. The chief ligamentous combination consists of the astragalo-scapoid ligament blended with more or less of the anterior portion of the internal lateral ligament of the ankle joint and the capsular ligament between the scaphoid and internal cuneiform.

Operations, when necessary, should be performed at the earliest possible moment, and all of the requisite cutting should be done at once. The chief guide in the treatment is the amount of rigidity present, which is greater in proportion as the ligaments are implicated. With the exception of the tendo Achillis, it is seldom if ever necessary to divide tendons unless together with the ligaments associated with them at their insertions. The deformity should be rectified at once as much as possible.

Dr. Ogston recommends rectifying the deformity as much as possible by means of manual pressure, and then applying a plaster bandage made of the best quality of plaster rubbed into fine bandages, next to the skin, without intervening flannel or muslin. This is removed at the end of six weeks and the process repeated. If the bandage be not pulled tight during its application, but be laid loosely around, no constriction results, but merely accurate adaptation. The adducted or varus position should be entirely corrected before the equinus is meddled with, and then the tendo Achillis should be divided. Three to eight sittings are necessary to cure the adducted position and one to three for the plantar flexion.

In very bad cases he seems to prefer Lund's operation of excision of the astragalus. Linear osteotomy of the tarsus he does not consider a good method. Cuneiform excision gives a result pretty to the eye, but after it is done the anterior part of the foot is of no assistance in walking. He has also obtained good results in some cases by osteotomy of the tibia and fibula just above the ankle joint.

Dr. Whitson maintains that the only method which holds out any hope of permanent benefit in talipes varus after the second or third year is the extraction of a portion of the tarsus. The soft structures might be stretched if they alone were at fault, but the resistance of the osseous deformity is much too formidable to be overcome by mechanical means. After operation, mechanical treatment must be diligently pursued for from twelve to eighteen months. For this purpose he recommends incasing the foot in paraffin boots which should be renewed every month.

Dr. Buchanan divides cases of talipes varus into three classes: First, those of minor degree in which the deformity depends on shortening and rigidity of the tendons, fasciæ, and ligaments, which can be remedied by manipulation and fixation; second, cases in which the abnormal position of the bones is maintained by such a degree of tension and rigidity of the soft parts as to render tenotomy necessary of the tendo Achillis, or of the plantar fascia and the muscular substance attached to it. To divide the latter he introduces a tenotomy knife at the inner edge of the foot opposite the tuberosity of the scaphoid, passes it superficial to the plantar fascia till the point reaches the middle of the sole of the foot, turns the edge of the knife vertically, elevates the handle to depress the point, and cuts through the plantar fascia and the muscles beneath it till the point is over the articulation between the head of the astragalus and the scaphoid. Here he cuts the tendon of the tibialis posticus and the deep ligamentous fibers, thus freeing the astragalo-scapoid joint, which is the one upon which the incurvation of the foot hinges. In his experience no bad results have attended this somewhat heroic incision. Third, cases in which the bones have been so altered by pressure from walking on the distorted foot as to require excision of a portion of the tarsus for their correction. The form of operation should be chosen to suit the individual case.

Mr. Symonds employs the chain saw passed around the tarsus at its greatest convexity for the purpose of tarsotomy, and says that it is a method superior to any other because it is more simple and more easily executed, because practically no deformity is left, and because it is almost a subcutaneous operation.

Dislocation of the Metatarsus.—Atkinson ("Lancet," Dec. 1, 1888) reports a case of this rare dislocation which resulted from a fall. A prominence was found corresponding with the line of the tarso-metatarsal joint. Posterior to the prominence there was a hollow where the articular surfaces of the four outer metatarsal bones could be felt. The base of the first metatarsal was raised a quarter of an inch above the level of the internal cuneiform. The front of the foot was everted, forming a distinct angle with the tarsus. The extensor tendons on the dorsum were prominent. The length of the foot from the heel to the tip of the hallux was half an inch less than that of the other foot; from

the external malleolus to the tip of the fifth toe it was a quarter of an inch less. The dislocation was easily reduced under chloroform.

Unilateral Adductor Paralysis of the Larynx due to Reflex Nasal Irritation.—Stewart ("Lancet," Oct. 13, 1888) reports two cases which tend to confirm the view that laryngeal paresis may be due to nasal irritation. In both of the cases given the paresis was unilateral on the right side, and the adductors were at fault; in both, the right middle turbinated bone was much enlarged and was pressing on the septum; and in both the laryngeal symptoms disappeared on removal of the nasal trouble.

Congenital Cyst of the Urachus.—Lawson Tait ("Lancet," Oct. 6, 1888) reports a case in which a cyst of the urachus projected into the pelvis of a woman, aged twenty-eight, completely filling it. It was filled with foetid, thick, flaky pus, and was attached to the abdominal wall by a short sessile pedicle more than two inches in diameter. It was easily removed.

Cholecystotomy.—Torrance ("Brit. Med. Jour.," Dec., 1888) reports a case in which he removed forty-three small calculi from the gall-bladder. They were round and closely packed together. The patient made a good recovery from the operation.

Danger of operating upon Persons with Splenic Enlargement.—A reminder of conditions not surgical under which it is dangerous for him to operate is occasionally useful to the surgeon. So an article by Mr. Williams ("Lancet," Nov. 24, 1888) on a fatal case of litholapaxy is very instructive. This patient was suffering from splenic leucæmia, a condition which militated greatly against the success of any operation. But that persons with simply enlargement of the spleen are liable to serious risks if operated on is shown by two cases furnished by Mr. Cadge. It is also the opinion of Sir Joseph Fayrer that it is best to avoid, if possible, any operation not absolutely necessary to save life in cases of splenic enlargement, even though there may be no leucæmia or apparent anæmia present.

An Antiseptic Solution.—Rotter ("Ctbl. f. Chir.," No. 40, 1888) advocates the following solution as effectively antiseptic while not likely to produce such toxic symptoms as occasionally follow the use of the generally employed solutions of carbolic acid and bichloride of mercury. He considers these points to be of major importance to an antiseptic solution, and claims that these are met by the one which he proposes. 1. The antiseptics must be cheap and easily kept. 2. The solution should remain perfectly clear without color or odor. 3. The materials should be always readily soluble in common spring water; and 4, should be dry and easily carried about. The formula he gives, for a solution in one litre of water, is:

℞ Hydrargyri bichloridi	0.05 grm.;
Sodii chloridi	0.25 "
Acidi carbolicæ	2.00 "
Zinci chlorid, }	5.00 "
Zinci sulphocarbolicæ, }	5.00 "
Acidi borici	3.00 "
Acidi salicylicæ	0.60 "
Thymolis	0.10 "
Acidi citrici	0.10 " M.

He arrived at the formula theoretically and professes to have proved its value practically.

Miscellany.

The Philadelphia "Times and Register" thus states its position with regard to the matters concerning which we quoted from the "Druggists' Circular and Chemical Gazette" in our last issue:

"The 'Druggists' Circular' continues the attack upon us which was opened by its manager at Newport. We desire to say at once that every statement and insinuation therein made concerning the 'Times and Register' is utterly and unqualifiedly untrue. Neither manufacturers nor patent-medicine houses own or control our company. It is not a trust and has no designs upon its contemporaries. The absorption policy

suggested only exists in Lillard's imagination. This, and the impudent attempt to represent the 'Times and Register' as favoring substitution, are simply intended to create a little prejudice against our enterprise in the minds of publishers and advertisers."

"By one of those mistakes which, we are assured, occasionally happen in even the best regulated families, an annotation slipped into one of our late issues which was worded in such a manner as to give rise to misapprehension. It scarcely seems necessary to say that neither the 'Times and Register' nor any member of its editorial staff favors or desires in any manner to condone the wrong of substitution. Our record in that matter is certainly clear, and there is scarcely a medical journal in the country which has not quoted approvingly our editorial condemnation of this practice, and defense of the physician's right to prescribe whatever he considers best, and the pharmacist's duty to give exactly what is ordered, no matter what his individual opinion thereupon may happen to be. We have even gone to the trouble and expense of having special examinations made of the various pepsins and fluid extracts in the market, and demonstrated the necessity under which the prescriber rests of designating the manufacturer upon whose fluid extract he is basing his dosage; as, in the case of belladonna, we found a diversity ranging from 0.18 to 0.58 between the samples tested. The writer of the annotation headed 'A New View of Substitution' had no thought of defending the manufacturers of febriline, whoever they may be (we do not know the parties, and have no advertising or other interest in them), in what was an undoubted wrong—the selling of one thing under the name of another. Even if commercial quinine does contain, as is claimed, a portion of quinidine, this is also a wrong, and does not constitute a valid reason for their action. The writer of the paragraph labored under the hallucination that his item was ironical, and that he was making a very passable poke at himself and his brother physicians when he suggested that they were themselves doing the very thing they so strongly objected to in the case of the druggists. Like Mark Twain's celebrated joke about the Indian statue, however, this one seems to have been so far fetched that nobody saw it."

An Exanthem following the Subcutaneous Use of Antipyrine.—Mazzotti ("Giorn. ital. del. mal. ven.," etc., 1888, xxiii, 210) employed subcutaneous injections of antipyrine over the sciatic nerve, seven grains and a half once a day, for the relief of sciatica, and on the third day of the medication an exanthem appeared in the region of the injections. It consisted of raised round or oval papules of the size of a lentil or a bean, of deep brick-red color, and grouped, sometimes forming irregularly shaped figures. The eruption reached its height in twenty-four hours, and then began to fade slowly. On the fifth day of the eruption an unexpected change took place in the exanthem. Some of the papules were much paler and more flattened; others had assumed a bright-red color, and upon them had arisen small, pinhead-sized vesicles containing nearly clear serum, which were confluent. There were also groups of vesicles along the outer side of the leg and on the dorsal and plantar surfaces of the foot. A zoster had developed, extending beyond the site of the original eruption. It was noticeable that upon the original site of the eruption the zoster showed itself exclusively upon the original papules. The zoster ran its regular course.

The late Dr. Isaac O. Lea.—At the last meeting of the Medical Society of the County of Richmond the following preamble and resolutions were adopted:

Whereas, The announcement through the public journals of recent date has informally brought the sudden and untimely death of our late esteemed associate, Dr. Isaac O. Lea, to the attention of this society; therefore,

Resolved, That the Medical Society of the County of Richmond recognized in the late Dr. Lea one of its oldest, ablest, and most experienced members; a physician who, for the past thirty-four years, had held a position in the medical profession of this county second to that of none of his compeers; a genial, warm-hearted, and clear-headed man, who, when questions of vital interest to the profession were under discussion before this society, never failed to take a prominent part in its deliberations and a conservative position in regard to its action thereupon; a gentleman always in all his relations to his associates,

and a physician whose place among us it will be difficult to fill. Peace to his memory.

Resolved, That this society tender its profound sympathy in their bereavement to the several members of our deceased associate's family, and that the secretary be ordered to forward a copy of these resolutions, properly engrossed, to the son of the deceased, as the family representative, and provide that the same be published in the county papers and in the New York "Medical Record" and the "New York Medical Journal."

Committee: { F. E. MARTEDALE, *Chairman*,
F. U. JOHNSTON,
J. WALTER WOOD,
MAY R. OWEN, *Secretary*.

The City Board of Health.—The office of Sanitary Superintendent having been resigned by Dr. Walter De F. Day, the secretary of the board has sent him the following letter, dated July 30th:

"The Board of Health directs me to inform you that it has this day, with great reluctance, accepted your resignation of the office of Sanitary Superintendent, which you have long filled to the entire satisfaction of the public and of this department, and with great honor to yourself. The board desires me to officially express to you its high appreciation of your valuable services as the chief executive officer of this department, of your ability and integrity, and of your uniform kindness and courtesy in all your official relations. The board regrets that your health obliges you to dissolve your connection with this department, and thereby deprive it of the services of an officer who has its entire confidence."

We are informed that the appointment of Dr. W. A. Ewing as Dr. Day's successor was favored by the president of the board as being for the best interests of the department and the public service. Dr. Ewing served the board in various capacities from 1870 to 1886, and is considered thoroughly familiar with all the work of the office to which he has now been appointed.

The Walden California Brandy.—The "Merchant and Viticulturist," of San Francisco, publishes a translation of an article in the "Destillateur-Zeitung," in which Mr. Edward Walden, of the firm of Walden & Co., of California, is represented as having said to its representative:

"The manufacture of cognac out of California wines is not at all new. A number of growers have tried it for years, generally, however, without success. The conditions for manufacturing brandy in California are identical to those of Europe; only few districts producing wines suitable for it. It was a sore mistake of many a grower to believe that any good sound wine, distilled anywhere, would produce a cognac like the French, the only kind in demand; like those who have tried the same thing in Hungary, Spain, Portugal, and other countries, they have met with sad disappointment. It is only after a number of experiments and close observation that I have been able to determine which are the most suitable wines and where to find them. My distilleries are now north of San Francisco in the Napa and Sonoma valleys. To manufacture cognac I use but very young wines from grapes of my own vineyards or those of my neighbors, pressed on my own premises. Early in September the fresh-cut grapes are brought to the pressing-house and the work begins at once. Immediately after the first fermentation we begin to distill, and the work continues until the middle of February. Buying older wines at the vineyards for distillation I have abandoned entirely. I can only guarantee the quality of my product and its subsequent aging when the pressing has been controlled by me. For the manufacture of cognac in California I consider this of the utmost importance. We have great difficulty in keeping light wines of good quality. The temperature is evenly warm. We lack the cold of winter, the freshness of spring, and the coolness of fall. A winter like that in Germany we do not know. Wines pressed in the fall often become spoiled the following summer, and this for the simple reason that, with but few exceptions, the wine growers have not sufficient room in their cellars or proper places to keep the wine. It is of frequent occurrence that wines more or less gone are used, to save them from entire destruction, for the manufacture of so-called cognac, a poor and miserable product, not worth a third of the cognac manufactured from sound, fresh wines. Cognacs made of spoiled wines have a very

peculiar ethereal taste, which becomes stronger as it gets older, and which after a while does not even remind you of anything like cognac. In my distillery cognacs are brought from the still at 14° above proof (equal to 75° Tralle), and as they come from the still they are delivered to the trade. For this reason no sugar is added to my cognacs, as is the case with most of the French cognacs, and this is not without value to the German consumer. The import duty on cognacs to which sugar has been added is, I understand, 180 marks per 100 kilogrammes, while the duty on my production is only 125 marks."

ANSWERS TO CORRESPONDENTS.

No. 278.—We do not call to mind any recent articles on the subject. One form of the affection, the *entérite glaireuse* of the French, is well treated of in Nonat's "Traité pratique des maladies de l'utérus," etc.

No. 279.—A weak lotion of corrosive sublimate has been recommended.

No. 280.—1. It is an excellent work. 2. Letheby, "On Food, its Varieties, Chemical Composition," etc. New York, 1872.

No. 281.—Try Labarraque's solution.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

OPERATIONS UPON STRUMA.*

By FRANK HARTLEY, M. D.

My interest in this subject is due not only to the privilege which I have enjoyed of seeing a goodly number of cases operated upon by others, but especially to six cases in which I have operated for enlargement of the thyroid gland myself. These cases comprise one for struma fibrosa—total thyroidectomy; two cases of partial thyroidectomy—one for simple adenoma (struma hypertrophica simplex), the other for substernal vascular adenoma; one case of enucleation for struma cystica, one case of Kocher's resection for struma hypertrophica simplex involving only a portion of one lobe, and one case of partial thyroidectomy involving one lobe, in which the sarcoma had extended beyond the capsule on its external surface. This operation was done not with the intention of a radical cure, as it was too advanced to expect any such result, but only for relief from the impending asphyxia. The patient is now free from her difficulty in respiration, although there is a return of the tumor beneath the sterno-mastoid muscle. The length of time elapsing from the operation is now nearly two months. I take the liberty of reporting to the society my experience in these cases for the purpose of obtaining an expression of opinion on the part of those who have met with this class of cases.

Although we must admit that the good results of to-day (0.8 per cent.) for simple goitre are largely due to the care which we bestow upon the treatment of the wound, we must not overlook the fact that the technique of this operation as practiced by Kocher, Miculicz, Liebrecht, and others is important, and is dependent upon two principles—the one, the management of the hæmorrhage; the other, the avoidance of the recurrent laryngeal nerve.

Of the arteries and veins, by far the more important are the veins. The thyroidea ima artery, existing only once in ten cases, is the only artery for which we are to be especially careful, since the other arteries are less liable to anomalies, and can be easily found. The veins are, however, more numerous, larger, and more important than the arteries, and an exact knowledge of them is necessary for a bloodless operation. Of these veins, the *venæ subcutaneæ colli* have always been prominent and quite important, on account of their relation to the external incision. The external jugular vein has only been seen in one case, in which there was an exceedingly large development of the lateral lobe. The oblique jugular vein has been present in three of the cases, but in only one did it require ligation. In all cases the anterior jugular veins were present and required ligation. Of those veins lying upon and within the external capsule of the gland, the communicating branch between the superior thyroid veins, when present, has seemed of more importance than the vein itself, probably from the fact that one is more liable to overlook it than the main trunk.

Its ligation is important, for it receives often a communicating branch from the anterior jugular veins above their point of usual ligation.

The superior accessory thyroid vein was present in three in five cases, and in two was as large as the superior thyroid vein itself. Of the veins about the lower border of the gland, the *venæ thyroideæ imæ* have been marked, and in each case the right has been larger than the left. The inferior accessory thyroid vein has been present in two cases, and in the remaining three cases the inferior thyroid vein was present without an accessory. As to the position of the recurrent laryngeal nerve to the inferior thyroid artery, the nerve has been found in all these cases where it was exposed (5) in front of the artery, and crossing it while its course was transverse; but when the artery divides into its branches its relation is altered so that its position is on a plane posterior to the artery and parallel to it. I have examined in all about twenty cadavers for this purpose, and have found the same relation to exist, except in three cases, where the nerve passed between branches of the artery. This seems to be the case only when the artery divides early in its course into its several branches.

Wöfler first drew attention to this matter, and Kocher has shown that the relation of the artery to the nerve is important, and is a constant one in that the artery from the thyroid axis passes transversely, slightly ascending, lying at first upon its outer side, and then behind it. When the artery meets the trachea it ascends upon its inner side, and, dividing into its branches, supplies the posterior surface of the lateral lobes. For this reason, the only safe points at which we may ligate the artery are either at its origin close to the carotid artery, or its branches must be tied close to the capsule of the gland.

Of the various incisions used, I have, in partial or complete extirpations, preferred that of Kocher's to the median or that along the anterior border of the sterno-mastoid muscle. It gives the most perfect and complete survey of the whole field of the operation, and an excellent chance to ligate the veins and arteries without difficulty. So perfect is the field offered by this incision that the operation can be done with quite as much ease as in a dissection upon the cadaver. The veins and muscles are recognized in their respective relations to one another, and are undisturbed by the line of incision or the slight traction given to the margins of the wound by the retractors. Moreover, the exposure of the trachea where the gland is attached and of the inner surface of the inferior horns of the lateral lobes where the *thyroideæ imæ* veins are present, and which in struma substernalis must be rendered free for ligation, seems to be perfect. The upper oblique portion of the incision, besides dividing the skin and the platysma muscle, crosses the anterior, oblique, and external jugular veins transversely, or at least obliquely, so that they may be secured by double ligatures before proceeding further with the operation.

The median and oblique incisions seem to me to be best fitted to those cases in which we are to remove strumous nodules either by enucleation (Socin) or *évidement* (Koch-

* Read before the New York Surgical Society, May 22, 1889.

er), but not for partial or complete thyroidectomies or resections (Kocher).

As to the treatment of that portion attached to the trachea, the isthmus, I have made use of Miculicz's method in two cases, which consists in fastening the struma in the neighborhood of the isthmus and trachea and by squeezing out the glandular portion to leave a pedicle consisting only of the connective tissue representing the tunica propria of the gland. This pedicle, which is made at a point where the gland is not attached to the trachea, may be treated as in ovarian tumors. It seems to me that this method is preferable to the usual one of dissecting the gland from the trachea on account of the safety one feels in respect to the nerve without any increased concern as to the conduct of the pedicle in the wound. It is true, however, that in Kocher's resection one is perfectly safe so far as the nerve is concerned, but I can not see that, as Kocher states, the danger is so much greater in this method that we are to prefer his resection in most cases of enlargements of the thyroid on this account alone.

Tracheotomy has been carefully avoided in these cases in which thyroidectomy was performed, and would only have been performed in case of immediate danger of suffocation, such as is generally the result of stenosis of the trachea from the pressure of substernal strumæ or severe tracheitis or a double recurrent paralysis. In all other cases it appears to me best to avoid it as long as possible, allowing, as Kocher suggests, an assistant to press upon the trachea from before backward, maintaining an oval or rounded lumen and giving a free ingress of air until the operation is finished, when, unless the rings are softened to the last degree, if the head is fixed, the danger will not recur.

The perfect success of this method was shown to me in one case in which the danger of immediate suffocation seemed impending until the pressure of the finger upon the deformed trachea restored it to its proper shape. It was maintained in this shape by the use of sutures passing through the tracheal walls, as suggested by Kocher.

This method consists in passing one suture through the lateral wall of the trachea without injuring the mucous membrane, over the anterior surface of the trachea, and through the lateral wall of the opposite side. The ends of the suture are then drawn tightly and tied over the anterior surface. In this way, the lateral walls are drawn away from one another, the sharp anterior angle is pushed backward, and the rounded form of the trachea is more or less completely established.

It has been suggested to sew the lateral walls to the soft parts upon each side and thus attempt to maintain the size of the lumen by giving support to the lateral walls. With this method I have had no experience. It does not, however, suggest itself to me as so perfect a method as the first one. The sutures in the first method maintain the position of the walls to one another as given them by the pressure of the finger during the operation, and exert their pressure directly upon the trachea itself and not through traction upon movable tissues in the neck. This method is, of course, applicable to the majority of such cases, since the deformity in the trachea is more frequently due to approximation of

the lateral walls than of the antero-posterior walls, or of one wall alone to the other. Should there be a more or less complete absorption of the tracheal rings, so that the trachea becomes practically a membranous tube whose walls will collapse from atmospheric pressure as soon as the support given them by the struma is removed, nothing is left but tracheotomy with the attendant danger of septic bronchopneumonia, cervical and mediastinal cellulitis.

The selection of the mode of operation in these cases has been guided by the fact that as much of the thyroid gland as is not involved in the struma should be left, not only for the avoidance of cachexia strumipriva, but for the prevention of the deformity in the neck as the result of the loss of the gland. Moreover, the variety of the struma, its size, vascularity, the extent of the involvement of the gland, and the character of the pathological condition existing in the gland will decide for us the particular method best suited for its removal.

Dependent upon the observations that a cachexia will not occur if a portion of the gland remains, Miculicz has recommended his so-called "resection" of the thyroid gland in order that not only a portion of the gland may be left, but also that any injury to the nerves or vessels may be avoided. Instead of this mode of operation, but for the same reasons, Wölfler recommended the ligature of the thyroid arteries in order to induce an atrophy of the gland. Such a method might be of advantage in the vascular or aneurysmal variety, but certainly not in the colloid or cystic.

Rydygier has lately reported sixteen cases in which ligature of the arteries has been performed—in fifteen all four arteries, and in one only the two arteries upon one side. These cases have been observed one year and a half after without return of the struma or the development of cachexia strumipriva. He seems to limit the operation to the recent parenchymatous struma. The methods of ligature used have been those of Velpeau, v. Langenbeck, Drobeck, and Rydygier. It is alleged for Rydygier's method that the cosmetic result is much better, as the cicatrix is concealed beneath the collar. I have no experience in this method of operation.

The intracapsular or intraglandular enucleation of the struma, as recommended by Julliard and Socin, however, seems to be the most certain and radical of the methods for partial extirpations, with the slightest possible danger from hæmorrhage or injury to important nerves.

In cystic strumæ the intracapsular enucleation first recommended by Julliard seems to be the safest and least dangerous of all methods. It requires the shortest time for healing and is easily accomplished. The bleeding is slight, as the vessels of the capsule are already obliterated in large part.

In parenchymatous strumæ the intraglandular enucleation recommended by Socin and Garré is applicable to those cases in which small or moderately large and circumscribed nodules are present and in which the vascular supply is not marked. Kocher's *évidement* or evacuation differs from the enucleation in that, instead of dividing the glandular capsule down to the struma and shelling it out, one incises immedi-

ately through the strumous nodule and removes it with the fingers or sharp spoon. This method Kocher recommends for those cases where the separation of the strumous nodule from its surrounding tissue is too difficult to accomplish and the hæmorrhage from the gland is excessive, or where, during an operation, dangerous symptoms of suffocation are present. This condition of affairs is seen especially in those cases consisting of large, soft, and circumscribed nodules with abundant vascular supply.

These two methods are less liable to be followed by tetany or cachexia strumipriva than other methods of partial thyroidectomy. In fifty cases Socin saw no case of tetany or cachexia.

Should the parenchymatous goitre involve the whole of one half of the gland, or be composed of a large number of cysts or nodules not covered by the parenchyma of the gland, a partial thyroidectomy is to be preferred to an intracapsular method, as the bleeding is much less and the time required for the operation shorter.

In just such a case P. Bruns lost his first case in seventy consecutive operations. If we are obliged to select an operation for the removal of one lobe, or if both lobes be so involved and pressure upon the trachea and œsophagus such as to give symptoms of impending suffocation, struma bilobaris or circularis, struma maligna, or the thyreoiditis diffusa, we can do no less than the partial or total thyroidectomy. Such conditions put the life of the individual in immediate danger, and we are forced to use a radical method to overcome the immediate danger, although in so doing we expose the patient to risk of a cachexia strumipriva amounting to thirty-three per cent. in total operations and one per cent. in partial ones. In order to avoid just this possibility, one selects either Miculicz's or Kocher's resection. In the first method we leave behind a certain amount of the gland and avoid to a large extent doing injury to the recurrent nerve; but the vascular supply of this portion left has been more or less interfered with in the operation, and it renders the result somewhat uncertain if we rely upon the portion remaining for any functional action.

The second, Kocher's resection, which has been recommended to supersede Miculicz's simply on account of the possible danger of injury to the nerves in the application of the ligature to the stump, has also the great advantage of leaving behind a portion of the gland normally supplied with blood. This method, which we may consider as applicable to the greater number of cases of struma, except the malignant, diffusely inflamed, and the diffuse hypertrophic goitres, for which extirpation alone is applicable, consists in two principal steps: 1. If we wish to preserve as much of the healthy gland as possible for functional activity, we omit the ligature of the thyreoid arteries; if not, this is done as in the operation of extirpation. 2. Enucleation of the diseased portion according to Kocher's method. This operation may be said to be an enucleation with a circular division of the gland, and with or without ligature of the arteries.

The extirpation of the gland, either partial or complete, is to be reserved for those cases not applicable to some of the above methods, because of the extent of the involve-

ment of the lateral lobe, or for the malignant strumæ, the diffusely inflamed strumæ (thyreoiditis diffusa), or the hypertrophic and diffuse variety with impending symptoms. It appears to me that we must be very careful in our selection of the extirpations, for we are often not certain of the condition of the opposite lobe in the partial operation, nor can we as yet place much reliance upon the accessory thyreoid glands to carry on the loss of function from complete extirpation. Although these glands, together with a processus pyramidalis, have been shown by Streckhuseu, Zuckerkandl, and Gruber to be by no means uncommon and to be situated above and below the hyoid bone (twenty-eight per cent. and twenty-one per cent.), below the isthmus and upon the arch of the aorta (Carle), upon the lateral borders of the lobes (Madelung), as well as posterior to the thyreoid gland between the trachea and œsophagus, or œsophagus and vertebral column, and to exist in about one half of the cases, still the development of cachexia strumipriva amounts today to thirty-three per cent. for total extirpation, and for partial extirpation to one per cent. I do not think we can disregard this sequela to this method of operation, and I think that we should, considering the frequency of it, limit the operation as much as possible. So far as we know at the present day, the theories of Kocher, Baumgärtner, Gussenbauer, Reverdin, and Bircher are not substantiated by the results of operations upon man. When we compare these with the experiments upon animals made by Dr. Halsted, now of Baltimore, with the clinical observations as collected by the Clinical Society of London, and the exact physiological investigations of Horsley and Fuhr, we are led to the belief that the symptoms following the loss of the thyreoid gland, either from operation or as the result of disease, should be ascribed, not to any injury to the nerves nor to any general disease existing before the operation, but to the loss of a function which is indispensable to the proper activity of the nervous system (Bruns). Considering these facts to be true, we would assume: 1. For aneurysmal or vascular struma, possibly recent hypertrophic strumæ, ligature of the thyreoid arteries (Wöfler). 2. For cystic strumæ, enucleation (Juliard); when involving the whole of one lobe or both lobes, extirpation, partial or complete. 3. For parenchymatous strumæ, when circumscribed and not vascular, enucleation (Socin); when diffuse, ligature of the thyreoid arteries (Rydygier); when confined to one lobe, or if both lobes are involved and composed of a large number of small cysts and nodules with no parenchyma uninvolved, a partial or complete thyroidectomy is alone admissible, especially if there are present dangerous symptoms of impending suffocation. 4. In by far the greater number of cases of struma a Miculicz's or Kocher's resection is indicated, and the selection is to be made according to the value of the portion remaining in the prevention of the cachexia strumipriva. 5. Extirpations: complete are to be reserved for the cases of struma maligna, thyreoiditis diffusa, struma bilobaris, with impending symptoms of suffocation; partial, to those cases in which the involvement of one lobe is complete, so that no parenchyma is left which can be saved.

In the cases operated upon I have not seen any compli-

cations in wound treatment except in one case,* nor has there been any case of tetany or cachexia strumipriva. In one case of large substernal struma a left recurrent paralysis has followed, which, however, was not present at the time of the operation, nor in the hospital before his discharge. How to explain this otherwise than as from cicatricial contraction I am at a loss.

PERIPHERAL PARALYSES DUE TO CARBONIC-OXIDE POISONING.†

BY GEORGE W. JACOBY, M. D.

THE occurrence of poisoning by the inhalation of carbonic-oxide gas is a well-known fact; it is also acknowledged that the cases of poisoning ensuing upon the inhalation of the products of combustion which are developed from glowing charcoal, mineral coal, and turf, or from the incomplete combustion of wood, when burned in a closed room, are dependent upon the deleterious action of this gas. Naturally, the composition of the gas will vary greatly, according to the quality and quantity of the coal burned, as also according to the duration and degree of combustion.

The products of such combustion are, on the average, composed of about five per cent. of carbonic oxide and six per cent. of carbonic acid, in addition to seventy-nine per cent. of nitrogen and ten per cent. of oxygen. Purified illuminating gas, which contains from eight to ten per cent. of carbonic oxide, probably also owes its poisonous qualities to this gas. It is for this reason that I feel myself justified in referring to the two cases which form the incentive to this communication together, although in the one instance the poisoning was due to coal gas and in the other to illuminating gas.

The action of carbonic oxide upon the animal organism is recognized by all writers upon the subject as being a double one—that upon the blood and that upon the central nervous system. A few inhalations of the pure gas produce convulsions, frequently also sudden paralysis, anaesthesia, and long-continued unconsciousness, the gas in this instance acting as a direct poison upon the brain and medulla oblongata. The walls of the vessels also lose their tonus, become dilated, and rupture easily.

Autopsies have revealed large foci of softening in the brain, hæmorrhages into the meninges, and capillary apoplexies in the brain substance, but there are as yet no pathological or experimental data showing an action of the gas upon the peripheral nerves. Clinically, where we are not dealing with the pure gas, our knowledge of the action of this poison upon the peripheral nervous system is, as will be shown, also very meager, although *a priori* there does not seem to me to exist any valid reason why the peripheral nerves should in this case be exempt from the same influence which we know is exercised upon them by a variety

of other poisons, infectious as well as chemical. The symptoms, as described in the various reported cases, consist of a burning sensation and reddening of the face; dizziness; tinnitus; headache, particularly in the temporal regions; a feeling of throbbing in the temples; oppression; nausea; vomiting; unconsciousness; tonic and clonic convulsions; involuntary passage of urine, fæces, and semen; complete paralysis; coma and death. In some cases eccentric pains in the extremities, as well as sensory disorders of the skin, have been noted. The objective symptoms referable to the nervous system observed in patients who have recovered are local or generalized anaesthesia of the skin and paralyzes of the voluntary muscles. Cases have also been reported in which paralysis of the sphincters of the rectum and bladder has remained for a long time. Psychic symptoms have also been noted, and even cases of dementia paralytica described as occurring after such poisoning. The number of cases reported in which paralyzes of voluntary muscles have occurred after poisoning by carbonic oxide is not large, and all of them, with the exception of one or perhaps two, are evidently of central origin. This has been particularly surprising to me, not only because I had seen two cases which were undoubtedly peripheral, but also because Schachmann, in an introduction to the report of a case observed by him, accepts all previously reported cases as peripheral. A reference to the original reports and articles, however, shows that this assumption is entirely unwarranted, and that, if the cases prove anything, they prove just the reverse. Thus, as early as 1775, Portal* described four cases of paralysis after carbonic-oxide poisoning; they are very insufficiently given, but the descriptions leave no doubt as to the central origin of these paralyzes.

The cases briefly are as follows:

CASE I.—Two women were asphyxiated by carbonic oxide; one died; the other "remained for several days without being able to support herself upon her legs, and she experienced a considerable numbness in the lower extremities."

CASE II.—Male; asphyxia by carbonic oxide; recovery. "And it was believed for several days that he could not support himself upon his legs; but, little by little, the extensor muscles regained their action."

CASE III.—Girl, aged twenty-one; asphyxia by carbonic oxide. She was unable to move any one of the extremities; the arms recovered first, and soon thereafter the legs.

CASE IV.—Male, aged twenty-two; asphyxia by carbonic oxide. "The lower extremities could not support him, and the upper ones were very weak. . . . The first day that he went out his legs trembled and could not carry him, but they acquired power in a few days."

Another case was published by Bourdon in 1843. From Leroy D'Étiolles,† who refers to it, as well as to Portal's cases, I have taken the following quotations, as Bourdon's thesis was inaccessible to me. The case was that of a young girl asphyxiated by carbonic oxide. "She noticed that she could hardly keep upon her legs. . . . This weakness lasted about twelve days."

* "Observations sur les effets des vapeurs méphitiques sur le corps de l'homme," 1775. Sixth edition, 1787.

† "Des paralyties des membres inférieures ou paraplégies," Paris, 1856.

* Bichloride eczema; did not interfere with the recovery in the usual time.

† Read before the New York Neurological Society, June 4, 1889.

The next writer upon the subject was Leudet.* His article is probably the best and only extensive one concerning these affections since Portal's. Although the author mentions the occurrence of peripheral paralyses, the chief value of the article undoubtedly lies in the description of the vasomotor disturbances, as the two cases of paralysis which are there described do not seem to me to be clearly of peripheral origin.

In the first case there was "a feeling of numbness in the three last fingers of the right hand, and they are extended with difficulty." There was also an "eschar over the lower part of the sacrum of the size of the palm of the hand."

The second case commenced with a paralysis of the extensors of the right leg, occurring in a male alcoholic, nineteen days after the poisoning by carbonic oxide. The entire right leg then became paralyzed; thereupon the left leg and thigh, both arms, and finally the face. Death ensued on the sixth day after the onset of the paralysis. The autopsy showed merely inflammation of the right sciatic nerve, the brain and spinal cord being found normal. This case is apparently a case of acute ascending paralysis (Landry), and was probably due to some undiscovered central cause, no mention being made of a microscopical examination of either cord or brain.

Since then but isolated cases of paralysis due to carbonic oxide have been published, and all, with the exception of the two following, are undoubtedly of central origin. The first of these, described by Rendu,† occurred immediately after poisoning by carbonic oxide and showed the hemiplegic form of paralysis. The muscles of the face and the extensors of the forearm and foot of the right side were affected. The skin of the paralyzed parts was anæsthetic; the thighs and upper arms were not implicated. Four weeks after the occurrence of the paralysis, faradaic excitability was entirely absent. Rendu believes the case to have been of peripheral origin, but the data given are not sufficient to establish this positively.

The second case is undoubtedly peripheral and is recorded by Schachmann.‡ Three persons attempted suicide by asphyxiation with carbonic oxide. Two of them died and the other survived. This one was a female aged twenty.

The attempt at suicide was made on May 8th. On the 10th the patient appeared to have entirely recovered from the effects of the gas, but, upon examination, a complete extensor paralysis of the left forearm was found. Sensation was normal. An electrical examination of the muscles was not made.

May 11th, 12th, and 13th.—The condition remained unchanged.

14th.—Slight movements of extension could be made with the fingers.

15th and 16th.—Continued improvement.

17th.—Almost complete restoration of function.

20th.—Complete cure.

* "Recherches sur les troubles des nerfs périphériques et surtout des nerfs vaso-moteurs consécutifs à l'asphyxie par la vapeur de charbon," "Archives générales de médecine," 1865, p. 513.

† "Union médicale," 1882, pp. 386, 397.

‡ "France médicale," July 1, 1886.

How little was known about paralyses following carbonic-oxide poisoning, and that the occurrence of a purely peripheral paralysis with reaction of degeneration, etc., from such a cause was even doubted up to the time of this publication of Schachmann's, is shown by the demonstration of a patient and the subsequent discussion which took place at the *Berliner medizinische Gesellschaft* in January, 1885. Here Remak* showed a case of partial radial paralysis in consequence of hypodermatic injections of ether. The patient, a female, aged twenty-three, was received into the hospital at Friedrichshain (December 5, 1884) on account of carbonic-oxide poisoning, and was given several injections of ether into both forearms because she was deeply comatose. When she regained consciousness she noted a paralysis of the left hand, which consisted principally in an inability to extend the basal phalanges of the fingers and an inability to abduct the thumb. Examination (eight days before the demonstration) showed a partial paralysis in the territory of the radial nerve. The supinators longus and brevis and the extensors of the wrist joint were not affected. Electrical examination showed the severe form of reaction of degeneration in the territory supplied by the deep branch of the radial nerve. Sensory disorders were not present. Although Remak was cognizant of the fact that numerous cerebral, spinal, and peripheral disorders might occur after carbonic-oxide poisoning, he nevertheless believed that in this case the paralysis was not due to the action of the carbonic oxide, but that it could only be accounted for by the ether injections.

In the discussion which followed, Bardeleben asked for further proof in support of this supposition, saying that he considered that already given as insufficient, whereupon Remak replied that paralyses occurring after carbonic-oxide poisoning had been but little studied; all that we knew was that they occurred, but that "particularly the increase of galvanic excitability observed here—*i. e.*, the typical course of a severe traumatic paralysis—had not been observed in carbonic-oxide paralysis."

This deficiency, which must be looked upon as the *punctum saliens* of the entire discussion, is not supplied even by Schachmann. The following personal cases cover the ground completely, as particular attention was paid to this point:

CASE I.—S. W. H., male, aged thirty-eight, came under observation December 8, 1887. Previous history unimportant. Habits good, and had always been comparatively well, although not very robust. On December 1st he left home in the evening in his usual health, called upon a friend, and entered into conversation with him. The room which they occupied was heated from below by means of a furnace; doors and windows were closed. After a short conversation his face became flushed and hot, then he felt dizzy, and his head began to ache. In addition to this he noticed strong pulsations of the arteries of the head and neck, blackness before the eyes, nausea, and a feeling of deathly sickness. Then complete unconsciousness supervened. The last recollection which he had of that time was seeing his friend sitting in a chair holding his head in his hands and hearing him say "Oh, my God! my God!" During the unconscious period he vomited. He was unconscious for about six hours, but

* "Berliner klinische Wochenschrift," 1885, p. 76.

had been removed to another room several hours before his return to consciousness. Beyond a feeling of general malaise, he experienced nothing until he attempted to walk, when he noticed that his right leg was weak and that his foot turned in, also that he had no feeling in his right foot. The following day severe pains were felt in the right leg, and these have not abated.

December 8, 1887.—Examination showed patient to be normal in every way except as regarded his right foot. Here it was found that the foot and toes hung lax in extension, and that they could not be flexed dorsad; the condition, therefore, representing a paralysis of the muscles supplied by the peroneal nerve. The muscles affected were the tibialis anticus, the extensor longus digitorum communis, the extensor hallucis, the peronei longus et brevis, and the interossei.

Examination of sensation showed complete anæsthesia of the front of the foot, extending upward to the middle of the leg; partial anæsthesia of the outer side of the leg, extending around the leg to beyond the median line upon its posterior surface. The outer margin of the little toe on the dorsal surface, the inner border of the foot, and the entire plantar surface, including the heel, were not affected. The electrical reactions of all the muscles were normal, and there was no atrophy. Patient complained of severe pain in the leg and foot.

12th.—Lowered response of muscles to faradaic current.

22d.—Motor paralysis present to about the same extent as at the first examination. The anæsthesia has disappeared, except in patches, located in the above-described territories, varying in size from that of a pea to a twenty-five-cent piece. Marked atrophy of the interossei. Pronounced reaction of degeneration is present in all the muscles supplied by the external popliteal nerve.

The course was that of a typical severe degenerative paralysis. The patient improved slowly, so that in April, 1888, when he discontinued treatment, he had complete control over all the muscles, although they still presented some weakness and reduced excitability to both currents. The anæsthetic spots also had not entirely disappeared.

CASE II.—A girl, E. D., aged eighteen, of French nationality, on account of domestic affliction determined to commit suicide. She locked the door of her room—a small hall room—turned on the gas, and went to bed. Some time afterward people in the house, noticing the smell of gas, traced its origin, broke into the room, and found the patient moaning and dazed; but not unconscious, upon the bed. She was removed to the fresh air, where she in a short time regained the full use of her senses; she then noticed that she could not use her right hand, while all her other extremities, with the exception of a feeling of weakness, were normal. I saw her two days after this occurrence.

January 6, 1889.—Examination showed the patient to be normal in every way except as regards her right hand. Here we found a paralysis of the extensor digitorum communis. Extension of the basal phalanges of the fingers was not possible, whereas extension of the end phalanges (interossei) was normal. There was also paralysis of the extensores pollicis longus and brevis and of the abductor pollicis, and paresis of the extensors of the wrist. The supinator longus and the triceps were normal. Slight sensory disturbance in the radial territory of the hand was present. The patient was seen regularly at intervals of three or four days, and the development of reaction of degeneration in the affected muscles, together with some atrophy of the muscles of the forearm and thumb, was plainly observed. Improvement began to take place in the beginning of February, and by the 1st of March the patient was considered sufficiently recovered to discontinue treatment.

It does not seem to me that in either of these cases there can be any reasonable doubt as to the connection existing between the paralysis and the carbonic-oxide poisoning. The paralysis occurring immediately after such poisoning must place the idea of a connection between the two uppermost in our mind. The possibility of a pressure paralysis must certainly be thought of, but it seems to me that this is an entirely gratuitous supposition, as the first patient was found sitting in an arm-chair, and was thence removed to a bed, so that pressure upon the external popliteal nerve could hardly have taken place; in the second case there is, in addition to the improbability of pressure having taken place, the fact that the paralysis did not implicate the supinator longus or the triceps. This partial localization of the paralysis makes it highly improbable that pressure should have been the cause. As regards the peripheral nature of the paralysis, I think there can be no doubt in either case. The localization of the paralysis, the strict confinement to a single nerve territory, the sensory disturbance, and the occurrence of reaction of degeneration and atrophy, together with the further typical course—all make it safe to assume that we are dealing with a neuritis.

The lesson which directly results from these cases is that peripheral paralysis affecting the radial or peroneal nerves may be due to the action of carbonic oxide; that we are once more taught that it is not safe to draw positive lines of demarkation between the possible central or peripheral action of certain toxic agencies. It has furthermore seemed to me (but this is only an impression in support of which I have no facts) that both radial and peroneal paralyses occur most frequently in winter among the poor occupying small and unventilated rooms, generally heated by a stove in the room itself; that, as my second case shows, complete unconsciousness is not necessary for the production of such paralysis dependent upon carbonic-oxide intoxication; therefore it is possible that these paralyses are, more frequently than we can at present admit, due to this cause. Further observations in this respect might prove of interest.

A CASE OF COMPOUND FRACTURE OF THE PATELLA TREATED BY WIRING.

BONY UNION.*

BY S. T. ARMSTRONG, M. D.,

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ALTHOUGH it is now almost a decade since Sir Joseph Lister said, "The risk a patient incurs in having his knee joint opened antiseptically is not greater or so great as that attending the removal of an ordinary fatty tumor without antiseptic treatment," † still it is the more frequent custom for surgeons to treat fractures of the patella by the old fixative procedures. This is done, notwithstanding the fact that the late Dr. F. H. Hamilton, in his work on "Fractures" (ed. 1884, p. 542), says: "Probably none of the

* Read, in part, before the Section in Surgery of the New York Academy of Medicine, May 13, 1889.

† "Lancet," 1879, vol. ii, p. 768.

tabulated transverse fractures (106) were united by bone; . . . only a small proportion of the vertical and comminuted fractures were thus united," thus demonstrating the failure of splints to secure bony union.

It is hardly credible that it is an accepted fact that ligamentous union of a fractured patella is as useful as bony union. Mr. W. Adams said: "From an examination of specimens [of fractured patellæ] in London museums, ununited fractures or feeble ligamentous union was the rule, a firm ligamentous union almost the exception."

Whatever may be the difference of opinion regarding the utility of wiring simple fractures of the patella—a procedure that will certainly find no supporters in the authors of our surgical text-books—there can be no question of the justifiability of operative interference in compound fractures of the bone in which the integrity of the knee joint has already been assailed.

In a paper by Mr. A. Poland,* published in the pre-antiseptic days, he has collected sixty-nine cases of compound fracture of the patella. Of patients with incised wounds, six recovered, two died; bony union took place in one case and ankylosis in one case; four patients had mobile joints. Of those with lacerated wounds, nine died, in one case the result was not stated, and thirty recovered; of the latter, ten had mobile joints, five had partial ankylosis, eleven had complete ankylosis, four had the leg amputated. Of those with gunshot wounds, three died and eighteen recovered; of the latter, two had mobile joints, three had partial ankylosis, eight had complete ankylosis, and in five cases the result was not defined.

The above-given statistics are far from encouraging, but medical literature of recent date contains a creditable number of recoveries following wiring of compound fractured patella, and the following case is reported as a contribution to the subject:

J. B., aged thirty years, a native of the United States, was admitted to the United States Marine Hospital, New York, on the night of March 23, 1889. He stated that he was injured on the 21st instant by a barrel of paint rolling against the left knee, the chine of the barrel striking over the patella, lacerating the skin and fracturing the bone. The wound was made as aseptic as possible by the interne, Dr. George B. Young, and the fracture was temporarily dressed.

On the 24th I examined the knee, finding a transverse fracture of the patella, the fragments moderately separated, and the joint distended by fluid. The necessity of an operation was presented to the patient, and, as he consented to its performance, he was prepared therefor.

On the morning of the 25th he was chloroformed, the incised wound of the skin of the knee was scraped with a sharp spoon, and the wound enlarged by transverse incisions to the bone. A quantity of bloody fluid escaped, and between the bone fragments was a quantity of blood-clot and some shreds of ligamentous tissue. These were removed, and the cavity of the joint was thoroughly cleansed with warm Thiersch's solution. Much trouble was experienced from venous hæmorrhage, and time was expended in ligating bleeding points.

A longitudinal incision was made in the skin over the upper fragment, in order to expose the bone, as nailing was intended. But in driving the nail into the upper fragment it was found

that there was a longitudinal fracture through this fragment, so holes were drilled through each portion of the upper fragment, corresponding openings made in the lower fragment, and the bone united by wiring instead of a nail. The wires were inserted so as to be extra-articular. A drainage-tube was placed over the patella and the skin united by a continuous catgut suture. Iodoform gauze was wrapped about the knee and the leg and thigh incased in plaster of Paris. Acetanilide and quinine were given every two hours. On the evening of the 26th his temperature was 38° C., but at no other time did it exceed 37.2° C.

On April 12th the dressing was removed. The wound had healed by first intention, except at entrance and exit of the drainage-tube and at the point of emergence of the silver wire. The patella could be moved over the condyles, showing that there was no ankylosis. The drainage-tube was removed. Leg placed on an inclined long posterior splint.

On April 18th the wire was removed from the patella.

On April 22d and 24th there were fungous granulations at the point from which the wire was removed. A sharp spoon was used to curette them. The patient was allowed to use crutches on the 24th. On May 9th a bone-hook was introduced into the sinus, about which the granulations had formed. The bony surface of the patella was detected, especially at the site of fracture, demonstrating a bony union. The patient was allowed to walk without the aid of crutches.

On May 13th the sinus over the patella had healed, and the patient was discharged on the 22d with a mobile joint, not quite able to flex the leg as in the normal state, but every day the range of motility was increasing and he was able to resume his occupation on shipboard.

The patient used his leg freely after being discharged, but while at work on June 10th he chafed his knee, and during the night the joint was painful. He was treated for this by the ship's surgeon on June 11th, and readmitted to the hospital on June 12th. When he was admitted, the joint was painful and swollen, and in the cicatrix over the patella was a mass of granulation tissue that was necrosed superficially; a temporary dressing was applied the evening of his admission.

The patient was seen by me on the morning of the 13th, and the joint was evacuated with an exploring trocar. As the fluid was slightly cloudy, and a microscopical examination showed pus corpuscles present, the joint was washed out, through the cannula, with a warm Thiersch's solution. The granulation mass was scraped with a sharp spoon, and when the patella was reached a piece of wire was found that had caused all the trouble. It proved to be a suture that was overlooked in removing the wires originally. The wound was dressed aseptically after removing the wire, and the patient given quinine and acetanilide. No fever occurred during the convalescence, and the motion in the joint was excellent.

There are several cases on record that have recovered with wires left in the bone, in which the wire had to be removed at a later date. One of the most interesting is recapitulated:

Mr. G. R. Turner reported ("Lancet," vol. i, 1887, p. 572) a seaman, aged twenty-five, that had fractured the right patella. For twelve days he received no treatment; then the joint was strapped and a plaster-of-Paris splint was applied. He was discharged in a month. Four months later he came under the care of Mr. Robson, of Leeds, who found separation of an inch and a half, and the limb weak and useless. In order to wire the fragments, Mr. Robson had to divide the lateral expansion of the vasti and quadriceps femoris. He discharged the patient in

* "Medico-chirurgical Transactions," London, 1870, p. 49.

something more than two months. While at sea the patient fell and hurt the knee. On landing he went to Mr. Turner for treatment. A wire protruded from a sinus at the outer side of the joint; a little suppuration around it. As there were signs of septic infection of the joint, it was opened, turbid lymph escaping, and a drainage-tube introduced. Three wires were removed. The patient recovered with a useful joint.

After being discharged the patient fell in an epileptic fit and refractured the same patella at a point below the first fracture. He recovered from this.

In treating fractured patellæ with wires two points seem to be essential: (1) To introduce the wires so that they will not enter the cavity of the joint, and (2) to remove the wires as soon as osseous union has occurred.

As the removal of the wire will always necessitate some disturbance of the granulations, it is suggested that a small bone drill, or gimlet, be employed to keep the fragments in apposition, and this may be left *in situ*, and can be easily removed.

If sufficient confidence could be reposed in the slow absorption of chromotized catgut, as well as in its adequacy to keep the fragments in apposition, it would be the best material to employ, as the wound could be closed and healing take place by first intention.

SOME DISCURSIVE REMARKS

BASED UPON HAVING OBSERVED INTIMATE RELATIONS BETWEEN
CHRONIC DISEASES OF THE UPPER AIR-TRACT
AND NEURASTHENIA.*

BY WILLIAM H. DALY, M. D.,
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DURING the past five years I have made some observations and noted them with reference to certain symptoms or diseased conditions referable to the intranasal structures or of the pharynx or larynx which have either been the immediate precursors or the concomitants of neurasthenia. In other words, many of the patients that have consulted me for a variety of symptoms referable to the upper air-passages have at the same time given a history of concomitant or early succeeding neurasthenia, and I think I may offer these observations to the profession as being not only new to its literature, but based upon a clinical experience sufficiently extensive to warrant us in taking up a new line of thought as to some of the features expressed in naso-pharyngeal catarrh and functional and inflammatory aphonia as they precede or coexist with neurasthenia in some one of the latter's many forms. It was the teaching of Murchison and others, and quite generally accepted too by the profession, that many of the conditions we know now as neurasthenia were conditions of suppressed or undeveloped gout or lithæmia; but if the thoughtful medical man will carefully read Murchison, eminent and able reasoner and clinician though he was, he will nevertheless be forced to conclude that the data for pronouncing certain forms of nervousness, in men especially,

which are characterized by insomnia, indigestion, mental irritability, etc., conditions of suppressed gout or lithæmia are wholly insufficient to satisfy those of us who like to believe we have found a rational cause, or that we have been taught one that is to our minds reasonable and borne out by future observations of our own upon patients. Unless this can be done, few of the thinking men in the profession can long hold to any dogma, let it emanate from whatever source it may.

I am fonder of noting plain practical observations in pathology and therapeutics than of indulging in abstruse theories as to what causes these certain conditions noted. Why? Because it is much easier for me to do this, and it suits best my practical bent of mind. Yet how much commoner it is among medical men, as among laymen, that at once a cause is sought for an evil and little or no attention paid to the interpretation, meaning, or cure of certain manifestations! As I have said, I confess to being more wrapt in noting the coexistence of symptoms, and, if possible, getting a remedy for their alleviation and cure, than of diving into their mysterious workings and explaining their manifestations by mere theories. The abler heads may weave theories to their hearts' content. But one page of practical experience, with careful and intelligent observation honestly reported, will redound more to our instruction than whole tomes of dry and baseless theory or dogma. What I have to say will, I trust, at least seem worthy of inspiring further observation in this direction. In these days of hard going and pushing for place, fame, and fortune, especially in cities, it is appalling indeed to see the early wreck of the physical and mental constitutions of the cultivated and respectable men and women who are neurasthenic either through their own folly or circumstances that are innocent enough of themselves if guarded by common sense and moderation. Now, it will seem strange to you possibly to hear from me that I believe laryngology and its congener, rhinology, have much with which to concern themselves in neurasthenia, as well as in the many reflexes that have been so well studied by the able minds of J. N. Mackenzie, Hack, of Freiburg, Roe, of Rochester, and others. But you will not be altogether surprised either. One of the old masters in medicine spoke of the nose and throat as the gateways of life, and I believe he was quite right. They are more than that; they are also the sentinels at the gateways of life in more ways than one. It is from these regions we are so often warned of the approach of discomfort, danger, and disease.

I need not refer to the fact that all the disease germs enter the system through these gateways. It is in one of these gateways that the half-pleasing sense of titillation causing sneezing warns us that we are catching cold; and, by the way, let me digress and ask, What is "catching cold"? My observation has taught me that the causes of so-called "catching cold" are as often intrinsic as extrinsic. That is to say, a patient without any exposure whatever to draughts of air, either suspected or real, may, by a certain state of the organs and their secretions, be seized with a tickling in the pituitary membrane and sneezing, followed by all the symptoms of "catching cold," and subsequently have pneumonia or other form of pulmonary inflammation

* Read before the American Laryngological Association at its eleventh annual congress.

with all its worst and most protracted consequences. Now, resuming my subject, permit me to refer to a summary of twenty-five cases of which I have the clinical records bearing specially upon the question I have brought herein to your notice in the title of this imperfect paper. These cases have a clinical history like the following ones selected, with certain features altered, masked, or absent, but the main ones to which I call your attention prominent and leading—viz., the presence of acute or chronic disease of the upper air-tract in some of its extent, and neurasthenia in one of its protean forms.

CASE I.—J. G., male, aged thirty, of bilious temperament, good parentage and habits of life, no acquired blood disorder, occupation active and mentally exciting. Subjective symptoms, a sense of intranasal fullness under the bridge of the nose and alternating stenosis in one or the other naris, especially at night when trying to sleep. Has a sense of worry and anxiety constantly present, and his mind is very active when repose is sought at night, precluding sleep, which, when obtained, is light and fitful. Appetite good, and digestion thought to be good. Uses no tobacco or stimulants. Social relations marital and excellent. No vices or excesses. Local objective symptoms, a bony spur upon the left side of the septum narium and a flaccid state of the mucous membrane on both inferior turbinates. Still under treatment, with some improvement going on, although the patient says he fails to discover the latter. This, however, will be discovered to him surely when the local intranasal disease is cured, and a cure in this case is one of the most encouraging and certain of possibilities, with further time and care.

CASE II.—Miss W. J., aged twenty-eight, nervo-phlegmatic temperament. A well-rounded, symmetrical, and apparently well-nourished figure. Complexion sallow. Nose flattened and tip deflected to the right. Secretion of mucus from nares posteriorly copious and sometimes offensive; tongue clean. Appetite and digestion always poor; bowels constipated. Catamenia normal. Has lived for over a year on pancreatized milk chiefly. A sense of intranasal fullness even when she is certain the canals are cleansed and freely pervious to air. Always weary and tired, and especially at the latter part of the day she is utterly exhausted. Sleeps badly, and always wakes with a bad taste in her mouth and a dry tongue.

Objective intranasal examination reveals a contorted condition of all the internal parts throughout that looks as though the nose had been hit with a hammer or caught in the door at some former time and badly twisted in its extrication. All the ordinary anatomical relations are of a cork-screw pattern and quite beyond a brief description. This patient is improving, but nothing short of the highest and most skilled rhinoplastic surgical art will ever make this nose a thing of beauty. The neurasthenic state is improving under alterative, local, and general treatment.

In ten cases, with which I will not burden you in detail, there was obstinate inflammatory aphonia attended with utter prostration, nervousness, and insomnia; seven of these patients had nasal disorder of a chronic character; the remaining cases all had as leading factors naso-pharyngo-laryngeal diseases in some form, with neurasthenia in some form also. Although one swallow does not make a summer, a flock of them will cause us to look for a change of weather; and will this little flock of cases not cause us to look out for this too widely prevailing constitutional condi-

tion as one of the unfortunate possibilities or concomitants of disease of the upper air-tract? That they coexist there can be no question.

DISPUTED POINTS IN THE PATHOLOGY AND TREATMENT OF PERITYPHLITIS.*

By RICHARD J. HALL, M. D.,
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THE amount of light thrown on the unsettled questions in regard to the pathology and treatment of perityphlitis by the numerous papers and discussions on the subject during the last year might seem to render a revival of the subject at present unnecessary. Undoubtedly the weight of surgical opinion was in favor of the intraperitoneal situation of the abscess, and a tendency to recommend operation a little earlier than has been customary.

Yet surgeons were not wanting to maintain the old views and methods, and when we find the name of the late Professor Sands at the head of this list, and consider the confidence which the profession has justly placed for many years in the accuracy of his observations and judgment, it seems to me important to publish every case whose symptoms, treatment, and course furnish evidence for the one side or the other.

In June, 1886, I published a case of suppurative peritonitis due to perforation of the vermiform appendix—laparotomy; resection of the appendix; recovery. A distended hernial sac on the right side naturally led to the supposition of a strangulated hernia before operation, and in reference to the operation various writers have seemed inclined to regard it as a case of strangulation of the appendix. It may be well to state, therefore, that the perforation was due to tubercular ulceration, and that there was no constriction at any point.

Since that time I have had occasion to open the abdomen for existing or threatened perforative peritonitis three times. My second case, which ended fatally, has already been reported to the Clinical Society, so I will merely state here that I was called out of town to see a married lady, about thirty-five, who had suffered for several months from pain in the right iliac fossa. Three days before I saw her, the pain being much worse, her husband proposed a drive to distract her attention. While driving, the pain became intense, and, on returning, her physician recognized general peritonitis. She was treated with opium and the cold-water coil. When I saw her, I at once made a diagnosis of perforation of the appendix, with suppurative peritonitis.

I at once performed median laparotomy, found a gangrenous and perforated appendix, a small suppurating cyst of each ovary, and the lower portion of the abdomen filled with feces and pus.

The appendix was resected and the stump sutured; both ovarian tumors were removed; hot-water irrigation and toilet of peritoneum were performed, with drainage through the incision. The delay necessary for the double ovariectomy and the miserable condition of the patient doubtless made the death from septicæmia, twelve hours later, inevitable.

* Read before the New York Surgical Society, April 10, 1889.

My third case was as follows:

CASE III. *Perityphlitic Abscess*.—J. M., married, aged fifty, Ireland, farmer, admitted to Ward 8, October 14, 1886.

Previous history: Patient says that, five days previous to his admission to Bellevue Hospital, he ate a hearty meal of fried sausage, and a few hours afterward he was taken with vomiting, purging, and cramps in his bowels. The symptoms abated somewhat, but the pain continued, and during the last three days the pain has been referred to the right iliac fossa. Patient has had diarrhoea until thirty-six hours before admission, when it ceased. Nothing characteristic about patient's stools. About two days before admission he noticed a hard, tender swelling, of about the size of a man's fist, situated in the right iliac region and extending toward the umbilicus, which has increased in size and become more and more tender and painful till now. Patient says also that he has had great pain and stiffness of the thigh in walking, that during the past twenty-four hours he has had chilly sensations and a feeling of heat alternating therewith, and that now he feels prostrated.

On admission, patient has a rapid, feeble pulse, a considerable elevation of temperature, fœtid breath, and muscular weakness.

Case seen by Dr. R. J. Hall. Patient placed at once upon operating table and abdomen examined. There is a large, tense mass lying low down in the right side of the abdomen and chiefly occupying the iliac region. The tumor causes a considerable swelling of the abdomen. On pressure, it is sensitive, and at its lower part and toward the right border deep fluctuation seems to be obscurely felt. There is no redness of the skin.

Operation performed by Dr. Hall. Patient etherized and the abdomen and parts shaved, scrubbed, and thoroughly disinfected in the usual manner. A hypodermatic needle was inserted deeply over the supposed site of fluctuation. After several punctures, about fifteen minims of a brownish-yellow, turbid, and odorless fluid were withdrawn, which, on microscopical examination, was found to consist largely of pus. An

incision three inches long was then made through the skin, beginning about two inches above the right anterior superior spine of the ilium, and thence running downward and inward. The superficial fascia and the three muscles of the abdomen were divided, until the fascia transversalis was reached. This structure was found much thickened and slightly œdematous. It was divided on a director, and, the loose tissue beneath having been torn through, the caput coli was exposed. After some further exploration with the hypodermatic needle, pus was found lying behind the gut. It was readily reached with the finger by tearing some slight adhesions between the intestine and the fascia transversalis. The quantity of pus evacuated may have amounted to two drachms. The cavity was then gently irrigated with a solution of mercuric bichloride (1 to 2,000), two drainage-tubes were inserted into the wound, and a dressing of iodoform gauze and bichloride gauze was applied. Patient recovered readily from the effects of the ether and was transferred to the Sturgis Pavilion, where he was put to bed, covered warmly, and surrounded by hot bottles. He received liq. morphinæ, Magendie, ℥v, and was ordered milk diet.

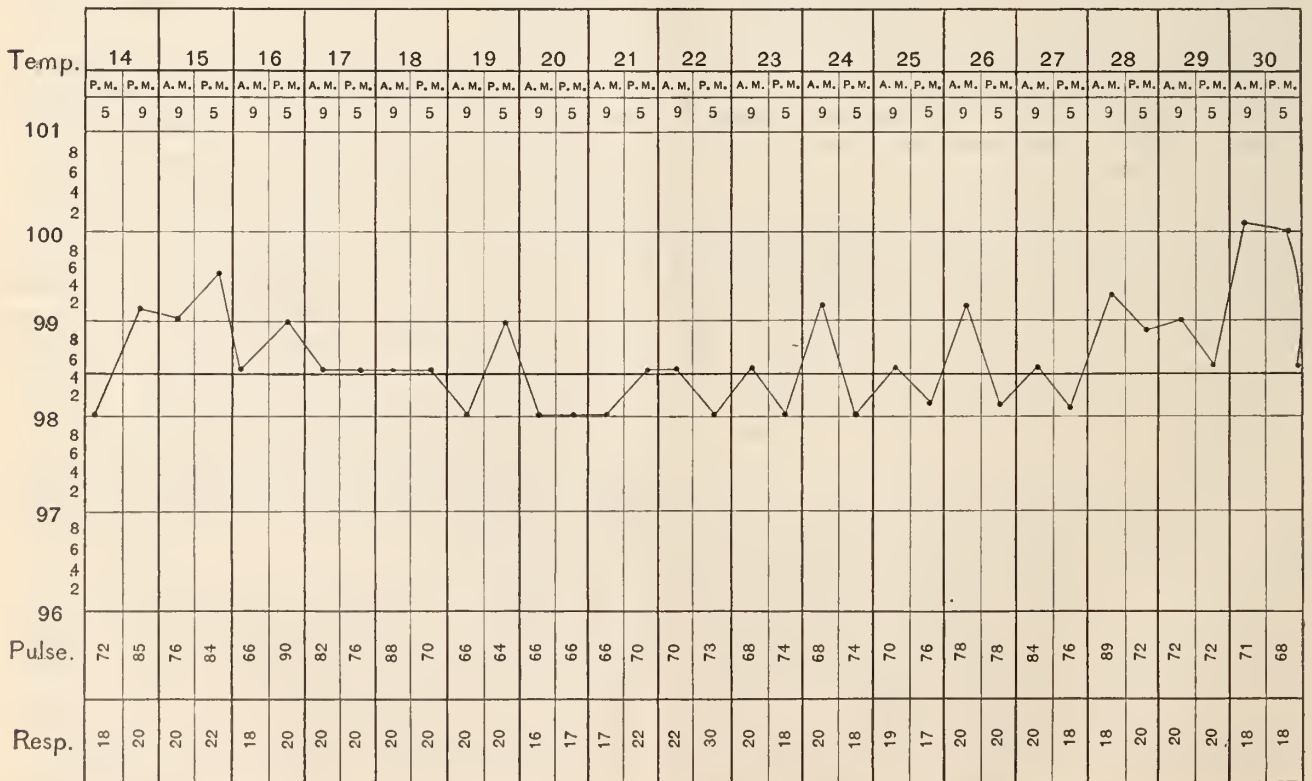
October 15th.—Patient passed a good night. His temperature since the operation has been about 99° F., and he has but little pain. Dressing removed this afternoon. Wound found to be healthy and very little pus in the drainage-tubes.

16th.—Temperature remains low. Patient comfortable.

18th.—Wound redressed; small quantity of pus in it. Patient had a movement from the bowels which was natural in character.

20th.—Redressed. One drainage-tube removed; there is no inflammatory redness about the wound; the amount of discharge is small. Patient free from pain and fever.

25th.—Last night patient received a large enema and had a very large fœcal movement. He says he has no pain to-day, but his dressing feels uncomfortable. Dressing removed; examination shows that the wound is for the most part granulat-



ing. Small amount of pus in the wound. Raw edges touched with argenti nitras and the wound then strapped.

27th.—Patient continues to do well. Wound granulating; restrapped.

November 8th.—This A. M. patient had several large movements, following salts, one dose.

12 M.—He complains of chilly sensations and a rigor. The wound appears as usual.

9 P. M.—Temperature rose to 102°. Pulse 102. Patient suffered from pretty severe pain, described as colicky and referred to lower part of abdomen. He slept but little during the night.

9th.—Pains continue this forenoon.

9 A. M.—Temperature 100°, pulse 96, respiration 20.

5 P. M.—Temperature 100°, pulse 107, respiration 20.

Patient continues to have abdominal pain. Wound redressed; presents no evidences of retained pus, but rather more tenderness about it than usual.

29th.—Since last note the wound has entirely healed. Patient has had no further abdominal symptoms. Slight increase of fullness on right side of abdomen. Discharged cured.

The confusion in our anatomical text-books as to the real relations of the caput coli to the peritonæum led to an animated discussion, among the Bellevue interns who witnessed the operation, as to whether I had opened the peritoneal cavity or not, and the writer of the history reported it in accordance with the, at that time, current views. The real state of affairs was as follows: The tumor in the iliac fossa extended well toward the umbilicus, the patient was profoundly prostrated, in a condition of acute septicæmia, and there was much tenderness and moderate pain over the whole abdomen. The patient stated, moreover, that the pain had been constantly increasing during the last few hours. This determined me to open the peritoneal cavity if I found no adhesion between the tumor and the parietal peritonæum. Having done so and come directly on a distended cæcum, I was able to raise the abdominal wall, to palpate and inspect the whole iliac fossa, the cæcum and adjacent coils of small intestine, and ascertain that they were intensely congested, but not suppurating. I sought also for the appendix, but did not find it. The upper portion of the wound was then packed with iodoform gauze, the cæcum raised, separating adhesions so slight as to offer no sense of resistance to the fingers, and an abscess between the posterior surface of the cæcum and the parietal peritonæum evacuated. I searched for the appendix again, but did not find it.

Had the abscess been situated behind the iliac fascia, it is evident that I must have cut a second time through the iliac (transversalis) fascia, and found myself in a cavity bounded posteriorly by the iliacus muscle, which was not the case.

I narrate this case as affording evidence in favor of the following propositions:

1. That an abscess, which would until recently have been regarded as typically extraperitoneal, is shown by anatomical considerations and inspection to have been intraperitoneal.

2. That the preliminary incision of the peritonæum is no barrier to the subsequent evacuation of the abscess. We are apt to forget that the abdomen is completely filled by

the intestines, and offers no encouragement to the entrance of pus so long as a free exit exists in another direction.

3. That we can not divide cases into two classes, readily recognizable from the beginning—one a circumscribed inflammation, in which it is safe or even imperative to delay operation; the other, a spreading peritonitis, usually rapidly fatal, immediate laparotomy offering the only chance.

Further, the fact that my needle must have repeatedly passed through the peritoneal cavity and both walls of the cæcum, and been withdrawn infected with both fæces and pus, went far to determine me to abandon a procedure sometimes dangerous and almost always useless. Certainly the failure to find pus would never prevent my operating where other indications pointed to an acute inflammation. My fourth case was as follows:

CASE IV. *Perityphlitic Abscess*.—J. N., aged twenty-one, married, United States, bricklayer, admitted to Ward 8, August 11, 1888. Patient said he had fallen off the platform of a horse-car, twisting his right ankle and knee. He also complained of abdominal pain in the right iliac region.

On admission, examination showed a sprain of the right ankle, a sprain of the right knee, and contusions of both eyes. The abdomen was tense, and the right iliac region was very tender to the touch. Patient said he had some diarrhœa.

Treatment.—The patient was put to bed, and Magendie's solution of morphine in seven-minim doses was administered.

August 14th.—For the past forty-eight hours the patient has had twenty-one minims of Magendie's solution of morphine in twenty-four hours, and has rested quietly in bed. The patient lies on his back with the right thigh flexed. In the right iliac region there is a large tumor, which is very tender on manipulation, and the abdomen is markedly tympanitic. At eight o'clock P. M. the operation was performed by Dr. Hall. The patient was placed upon the operating table and anæsthetized with ether. The parts about the tumor were shaved, scrubbed, and thoroughly disinfected in the usual manner. Then an incision, about six inches long, was made parallel with and one inch above Poupart's ligament in the right iliac region, and, by means of a director and curved scissors, the subcutaneous layers were successively divided down to the peritonæum. The peritonæum was opened, and about three ounces of pus were liberated from behind the cæcum, being shut off from the peritoneal cavity by adhesions. The cavity was washed out thoroughly with Thiersch's solution.

The hand of the operating surgeon was introduced into the cavity, and all adhesions were broken up. There occurred some parenchymatous hæmorrhage. A few deep and superficial cat-gut sutures were inserted, and then a large-sized rubber drainage-tube was placed in the cavity.

The cavity was packed with iodoform gauze; this was covered with bichloride gauze, and the dressing was retained in place by a sublimated gauze bandage. The patient was put to bed, where he was warmly covered and surrounded with hot-water bottles, and he soon reacted well from the effects of the ether and received hypodermatically eight minims of Magendie's solution of morphine.

15th.—The condition of the patient is much improved.

20th.—The operation wound has been dressed every other day, and it is healing well by granulation. It is now dressed with balsam of Peru and iodoform gauze.

September 15th.—The wound is healed, except a small fistula an inch and a half in depth, and this is packed with iodoform gauze and balsam of Peru every other day.

October 24th.—For some time past the wound has been com-

pletely healed. The patient is fully restored to good health. Discharged cured.

This case is of special interest because of its apparently traumatic origin; no doubt an already ulcerated appendix gave way, though rupture of a healthy distended cæcum can not be excluded. The invasion of the pus had been so rapid that the abscess walls retained in places the shining peritoneal surface.

The symptoms of threatened general peritonitis were much more marked than the history would indicate, tenderness rapidly extending over the abdomen, with pain and symptoms of acute septicæmia.

I may add that I did not see the patient until immediately before the operation or I should have interfered sooner; that the tumor determined the line of incision, and its length was such as to enable me to introduce the hand and inspect and palpate all the surrounding parts before evacuating the abscess. As before, the peritoneal adhesions were so slight as to offer no sense of resistance on separating them. The upper portion of the wound was packed with iodoform gauze before opening the abscess.

Although the cavity could be freely examined and explored, no trace of an appendix or of a rupture of the cæcum could be found.

I offer the case as confirming the previous propositions, and to support Dr. Weir's plea for early operation in such cases. I am confident, so threatening were the symptoms, that a delay of twelve hours would have resulted in general suppurative peritonitis.

A SUCCESSFUL CASE OF INTUBATION, WITH SOME REMARKS UPON AFTER-TREATMENT.*

REPORTED BY F. H. BARTLETT, M. D., AND
J. C. CLARK, M. D.,
OLEAN, N. Y.

INTUBATION of the larynx, since operators can report their cases by hundreds, has become an operation of such common occurrence that the report of an isolated case can not be a matter of particular interest to the profession unless there are circumstances attending the case—in the way of clinical history, after-treatment, or some other facts in relation to it—which impress the operator with its peculiar importance. The object, therefore, in reporting the following successful case of intubation is more particularly to call attention to the after-treatment and some of the difficulties which are frequently encountered after the introduction of the tube, and regarding which the literature on the subject furnishes comparatively little information.

F. J. C., female, aged seven years, on Monday, April 8th, complained of sore throat, which developed into what was supposed to be follicular amygdalitis. This yielded readily to the usual treatment, so that she was considered well and allowed to go out of doors on the following Saturday and Sunday. On Monday, April 15th, she again complained of sore throat. This was accompanied by slight fever and slight hoarseness. She was then given tinctura ferri chloridi. This condition remained unchanged until Tuesday night, when her symptoms became worse,

the hoarseness increasing, accompanied by dyspnœa and restlessness. On Wednesday diphtheritic exudation appeared on the tonsils, her temperature then being 101.5° F., and pulse 130. She was then given bichloride of mercury, $\frac{1}{32}$ of a grain every hour, with apparently some beneficial effect, as her condition on Thursday and Friday was somewhat improved. Her pulse and temperature were nearly normal, and the exudation in the throat had commenced to disappear; the hoarseness was also less marked. Saturday morning her condition became worse. There was an increase of the stenosis of the larynx, with considerable dyspnœa, and she coughed constantly. Saturday afternoon the dyspnœa increased rapidly; she became cyanotic, and preparations were made for intubating the larynx. About 5 p. m., however, during a violent paroxysm of coughing, a bit of membrane was coughed up, which greatly relieved her breathing. She immediately fell asleep and rested quietly three hours. Sunday morning the dyspnœa again increased. She from that time coughed constantly, the stenosis rapidly increased, and the general condition became grave, she showing evidences of extreme exhaustion.

Dr. M. C. Follett, Dr. C. H. Bartlett, and Dr. W. H. Sage were called in consultation, and all hope of recovery, except by means of an operation, was abandoned. Intubation was decided upon, and was successfully performed by Dr. F. H. Bartlett, with immediate relief of the dyspnœa, the patient falling asleep and resting two hours.

As has already been said, the literature on the subject gives unsatisfactory information as regards the details of the after-treatment of intubation. This being the fact, the operator of limited experience is somewhat uncertain as to the best mode of procedure. Such proved to be our experience in this case. O'Dwyer recommends giving semisolid food, like custards, etc., to avoid irritation caused by fluids entering the trachea through the tube. This plan was tried, but there was such a loathing by the patient of anything that approached solid foods that very little was taken. Milk and brandy in small repeated doses were given, but this excited a cough, which was so distressing that it was with great difficulty that she could be induced to take any nourishment by the mouth. Enemata of beef juice and brandy were given; but the morning following the operation found our patient in no better, and perhaps a worse condition, so far as the symptoms of exhaustion were concerned, than immediately after the operation, her pulse being then over 160.

At the suggestion of Dr. J. C. Clark, who was in attendance after the operation, the patient was kept in a recumbent position when taking nourishment, with her face turned to one side, and, instead of giving her nourishment by teaspoonful doses, she was induced to drink from a feeding cup, taking as large swallows as possible and swallowing rapidly. By adopting this method we were delighted to find that she could take two ounces of milk with two drachms of brandy at each feeding with little or no difficulty and no coughing, very little of the fluid entering the tube. As soon as the effects of the increase of nourishment and stimulants began to be felt there began a steady improvement in her condition, which continued until she had fully recovered. The dyspnœa did not return after the introduction of the tube, which kept free from mucus while it was retained, it being coughed up eighty-four hours after its introduction, there being no return of the dyspnœa after its expulsion. The expectoration became mucopurulent on the second day after the operation, and on the third day bits of membrane were coughed up. During the first week after the operation she took thirty-two ounces of milk, two ounces of Cibyl's beef juice, and two ounces of brandy every twenty-four hours. Minim doses of fluid extract of digitalis were given, more especially for its diuretic effect, and on the third day,

* Read before the Medical and Surgical Club of Olean, N. Y.

when the expectoration became scanty and tenacious, two grains of chloride of ammonium were given every hour with satisfactory results.

The patient's improvement, although slow, was satisfactory, and at this writing, although her nervous system is considerably shattered, she is slowly recovering her usual health.

Clinical Reports.

NEW YORK POLYCLINIC.

SERVICE OF DR. LANDON CARTER GRAY.

ERB'S TYPE OF PROGRESSIVE MUSCULAR ATROPHY.*

(Reported by R. S. Newton, M. D.)

H. S., aged thirty-five, married, Englishman, parents Jewish Poles, came to the Polyclinic on January 7, 1889. His mother and uncle have some difficulty in walking, of unknown nature. Patient's health has always been good. He was a strong and athletic boy, seldom defeated in running, swimming, wrestling, turning hand-springs, or any rough play. When twelve years old he was apprenticed at sea, being a deck boy for three years, and his strength was unimpaired during this period. The first symptom noticed was an inability to start on a foot-race when fifteen years old; yet for several years following he carried a heavily laden basket daily as a match peddler. He married when twenty-one. At this time he walked with "a flopping-down of his feet." Eight or nine years ago he found that he had to pull himself up stairs with his hands, though he could run down stairs without difficulty and walk on the level as well as before. Two years subsequently both his arms were equally and insidiously affected, and, in attempting to lift anything heavy, he could not carry his arms beyond the horizontal—as in putting a load on his shoulder or head. He soon became awkward even in combing his hair. The main trouble appears to have been in his arms and shoulders, as his fine movements of adjustment remained intact. He continued to walk about, although his back grew very weak. For the past seven years his disease has gradually but positively progressed. One year ago he walked without assistance, though slowly and imperfectly, but he now needs a man to aid him. No history or any evidences of syphilis. Several of his children were seen, and presented nothing abnormal. He has never, at any time in the course of the disease, had any pains or paræsthesiæ; no disturbances of the sensory, sexual, rectal, or vesical functions.

Present Condition.—He is a short, heavily-built man, with enormously bulky shoulders, scapulæ that fall far away from the ribs, ridiculously thin arms and well-developed forearms, and perfectly normal hands. As he stands, his abdomen is greatly protuberant from the great lordosis present. A plumb-line from the shoulders falls away from the buttocks, and the concavity of the spine is fully five inches away from the line. The buttocks are small, and there is great waste of the thigh muscles. The calves are hypertrophied; the feet normal.

Measurements.—Chest, 96 centimetres; right biceps, 19½ centimetres; left biceps, 20 centimetres; right forearm, 25½ centimetres; left forearm, 24½ centimetres; right shoulder girdle, 58 centimetres; left shoulder girdle, 57 centimetres; right thigh, 35½ centimetres; left thigh, 34½ centimetres; right calf,

34 centimetres; left calf, 36 centimetres; circumference of shoulder, 113 centimetres.

The patient can inflate his chest slightly, and retain air but a short time. Diaphragm not affected. Movements of the head natural; forward and lateral movements of the head natural, but backward movement is limited from the hypertrophied muscles over the cervical prominence. The arms can not be raised above the horizontal; can only be brought forward to bow out; touch the finger-tips and palms with the greatest difficulty. Backward movement impaired. When he sits, the lordosis almost disappears, proving that the extensor muscles of the hips are seriously affected. In attempting to sit down, he falls like a rocket into the chair as soon as he bends past his center of gravity, and can not get up unaided. He must be pulled up like a dead weight, when he will stand for hours without fatigue, as he does every day at his stand in Washington Market. He has the exaggerated roll of a sailor in walking, with a loose, flopping movement of the legs. No static or locomotor ataxia, Romberg symptom, involvement of the cranial nerves or of the face, trophic or vaso-motor disturbances, or fibrillary movements. Deep reflexes preserved. Knee-jerks lost. Pupils active to light and accommodation. Optic discs normal.

The faradaic and galvanic reaction are lost in all the affected muscles, whether atrophied or hypertrophied groups. In some muscles which are greatly wasted the anodal closing contraction is equal to the cathodal closing contraction, but there are no other changes electrically.

MUSCLES ATROPHIED.

Upper extremity.
Pectorales in part.
Latissimi dorsi.
Serrati.
Rhomboides.
Lower portion of the deltoid.
All the muscles of the arms, with weak supinators.
The glutæi, quadriceps, abductors, adductors of the thigh.
The erectors and extensors in part of the spine.

MUSCLES HYPERTROPHIED.

Upper pectorales.
Trapezii.
Supraspinati.
Levatores ang. scapulæ.
Upper deltoid.
Gastrocnemii.

NORMAL MUSCLES.

Sterno-cleido-mastoid.
All forearm (except supinator longus).
All wrist and intrinsic hand muscles.
All muscles of the leg, except gastrocnemii.
All muscles of ankles and feet.

Remarks.—After first calling attention to this variety of atrophy in his work on electricity, Erb reported twenty cases,* and maintained that they represented a distinct type. The age of the patients ranged from seven to forty-six, but the disease generally began in youth before twenty, frequently in families, and often in the female members. "It is a peculiar form of progressive muscular atrophy, characterized by a definite location, definite course, definite behavior of affected muscles, and definite alterations in them, but without alterations in the spinal cord" (p. 510). There is a remarkable persistency in choice of muscles affected. It begins most frequently in the shoulders and upper extremities, but it may also commence in the back and legs. It is characterized by slow, mostly symmetrical, but intermittent and often stationary, atrophy and weakness of these definite muscle groups. It is an atrophy, says Erb, "which is frequently combined with false or true muscular hypertrophies, a peculiar firmness of the wasted muscles, but without any fibrillary contractions or any traces of reaction of degeneration. . . . All other parts of the body (*i. e.*, excepting the muscular system),

* The patient was shown to the Section in Neurology of the New York Academy of Medicine, February 7, 1889.

* "Deutsch. Arch. f. klin. Medicin," Bd. xxxiv, 1884.

be it of the nervous system, organs of sense, vegetative organs, or external cutaneous system, remain healthy." The muscles of the forearms (except supinators) and those of the hands remain usually unaffected throughout the course of the disease." Erb considers this form of atrophy to be interchangeable with muscular pseudo-hypertrophy, except that the lipomatosis may be wanting.

The disease appears to be rare outside of Germany, as only two undisputed cases have appeared in England, and none in this country before this case. Congenital defective predisposition of the muscular system appears to be the only known cause. The prognosis is most uncertain. The disease may slowly progress, or even become stationary, or after many years involve new or many parts. In a considerable number of cases the malady does not appear to have shortened life. So few cases have been under treatment that nothing definite can be urged in the way of therapeutics.

The symptom group, according to Erb, would be: 1. The strong tendency to heredity. 2. The onset in youth or before twenty. 3. The selective and definite location. 4. The definite course. 5. The prominence of the atrophic process. 6. The subordinate degree of the hypertrophic process. 7. The freedom of the hand and wrist muscles from attack. 8. The absence of all pains, paræsthesiæ, or sensory phenomena. 9. The absence of fibrillary contractions. 10. The definite behavior of muscles to electrical tests. 11. The strong clinical and pathological data which point to this being a disease of the muscular system, to the exclusion of any implication of the nervous system.

Correspondence.

LETTER FROM PARIS.

Lactose as a Diuretic.—Chloride of Methylene as a Substitute for Chloroform.—The Water-supply of Paris.

PARIS, June 28, 1889.

PROFESSOR GERMAIN SÉE has startled us again lately with a new idea—that of using lactose in place of milk itself. It is all very well for Eloy to show afterward that Rabuteau and others had said years ago that lactose was a good diuretic, but the fact remains that the merit of demonstrating the therapeutical value of many of the lately introduced drugs, by careful clinical experiments, belongs to Professor Sée.

It would seem that lactose is the most powerful and at the same time the most inoffensive diuretic that we have, one hundred grammes of sugar of milk producing a diuresis that we are not certain to get with five quarts of milk. The polyuria resulting from the ingestion of the above-named quantity of milk-sugar is greater than that from any other form of medication. It produces very rapidly two litres and a half of urine, and this goes on to three and four quarts on the third day. Then it becomes stationary for a few days, and gradually falls again to two quarts and a half. During this time any œdema or dropsy that may exist disappears, while, the blood being dehydrated, there is no longer the same quantity of urine eliminated, but after a few days of repose the same effect can be produced by the same dose of lactose.

The diuretic action of lactose may be prevented by lesions of the kidneys and by diarrhœa; profuse sweating also may diminish its power, but it will certainly be shown at a later period. The sugar of milk is well borne and should be prescribed for

eight or ten days at a time, allowing a few days to elapse between each period. Dr. Germain Sée gives one hundred grammes of lactose to two quarts of water, and this can be made more agreeable by the addition of a small quantity of brandy or mint water. All other drinks are forbidden. Even soup, if given, is measured, so that the quantity of all liquids taken will be known and their diuretic effect observed.

Dr. Sée is studying another group of diuretics, which he calls the "renal diuretics." They consist of caffeine and theobromine. He also insists again that when dyspnoea exists, iodide of potassium is the remedy to add to diuretics in all heart cases. He finds it is useless to change the iodide of potassium for iodide of sodium, under the mistaken notion that the first is toxic. Indeed, Dr. Sée believes that iodide of potassium is the best medicine we have for the heart and the circulation, and that it only lacks a diuretic effect, which he finds in lactose.

M. Dujardin-Beaumetz also has tried lactose in his hospital service and had good results, but he was led to try also glucose. He dissolved the grape-sugar in milk and found that it also had a diuretic effect. He found, in fact, that all the sugars had a diuretic action, if the kidneys were in a state favoring their action, but, fearing glycosuria, he advises the use of lactose only.

The regular administration of chloroform, to the exclusion of ether, is one of the peculiarities of European surgical practice. Several deaths that have taken place lately in the Paris hospitals, under our most skillful surgeons' hands, when every precaution had been taken and when the patients were apparently in a fair state of health, have brought the subject of danger in the use of chloroform up again. It is now proposed to substitute chloride of methylene, or what is more properly called methylic chloroform. Professor Regnaud has called the attention of the *Académie de médecine* to this substance, which was formerly spoken of with great favor by Sir Spencer Wells and also by Richardson. M. Regnaud has made a series of experiments on this drug with M. Villemin, his assistant professor, and he finds that this pretended chloride of methylene is nothing but a mixture of four parts (or volumes) of chloroform and one volume of methylic alcohol. It has, however, the great advantage of remaining unchanged in air and light. M. Polailon gives the results of seventeen cases in which he used this product (which was carefully prepared for him by Professor Regnaud). Its action was found to be very slow, as it took from twenty to thirty minutes to produce sleep, although some patients were brought under its effects in fifteen minutes. But the great question is whether it is safer than ordinary chloroform or not, and M. Polailon says that it would require a large number of cases before that question could be answered, but, from the number of times he has tried it, he thinks that it is certainly not so dangerous as chloroform. Under the action of the new mixture the pulse and respiration were regular. In any case the mortality under the use of chloroform is such that any effort to produce a better method of anæsthesia is to be encouraged.

Notwithstanding the enormous increase of the population of Paris owing to the Exposition, the city mortality is very low, and this notwithstanding that, owing to new fountains and the hot weather, there is a scarcity of water—so much so that the usual supply of spring water is not sufficient and the River Seine water has to be used, in certain quarters, although it is said to be teeming with typhoid bacilli. With all this, Paris is remarkably healthy. Dr. Seguin, of New York, has been presented to the Paris Academy of Medicine as corresponding member.

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DISINFECTION WITH SULPHUR COMPOUNDS.

EXPERIMENTS with sulphurous acid have been made by Dubief and Bruhl, at the laboratory of the Hôpital Cochin, for the purpose of determining the disinfecting powers of the gas in certain localities. A report of their bacteriological researches has been presented to the French Academy of Sciences. A summary of their results is given in the "Lancet" as follows:

1. Gaseous sulphurous acid has an evident destructive action on germs contained in the air. 2. This action is particularly manifest when the atmosphere is saturated with watery vapor. 3. Sulphurous acid acts upon the germs of bacteria. 4. When employed in a pure state this gas may destroy germs even in a dry condition if its action is prolonged.

What the fate of sulphur fumigations in sanitary work will be it is not easy to say. Sulphurous acid has often been declared useless, and yet it continues in use, and commonly the alleged uselessness has been demonstrated to have been but imperfectly made out. It has risen superior to so many attacks that it may do the same yet longer, and continue to be regarded among our boards of health as a favorite agent for disease prevention. The work of the French experimenters mentioned above tallies very closely with the positions taken by Dr. E. R. Squibb, of Brooklyn, in a paper on "Disinfection by Burning Sulphur," in "Gaillard's Medical Journal," wherein he remarks that the chemical changes which result from burning sulphur in dry air do not yield sulphurous acid, but sulphur dioxide, which, he says, is not disinfectant. "There should be moisture," he says, "either with the sulphur dioxide or with the infected matter, or with both." To fumigate with the active sulphurous acid, instead of the inactive dioxide of sulphur, it is only necessary to evaporate water to the extent of three or four times the weight of the sulphur to be burned, or to wet the surfaces to be disinfected, or both, so that plenty of moisture may be present; a shallow pan of water upon a kerosene stove, well started in advance of the lighting of the sulphur, and the floor, ceiling, and walls well sprinkled with water by means of an ordinary dust-brush, will yield the required amount of watery vapor.

The time has not yet come for the discarding of sulphur fumigations for sanitary ends, but it is imperatively required that, if this method is to hold its place as a disinfectant of value, it be practiced in a more scientific and thorough manner. If it becomes manifest from a future study of this agent that it is not destructive of spores or germs of communicable disease, it will, of course, be discarded for some agent like corrosive sublimate, which, while more potent, is at the same time more dangerous to handle on a large scale, as must be done when its

use becomes a routine factor in public health administration. It is one thing to demonstrate the powers of some particular agent in the laboratory, but it is quite another thing and, in some particulars, a more difficult thing to bring that agent into daily use. For all that, let the laboratory work go on; we are grateful for every discovery and advance that it has made.

For the present, our conclusion is that the laboratory testimony against sulphurous acid as a disinfectant is conflicting, and that the agent should not yet be discarded, but be more thoroughly applied, and to this latter end it seems highly important that our boards of health and other authorities should review and revise their codes and circulars of instruction concerning the prevention of diphtheria and other infectious diseases.

EXECUTION BY ELECTRICITY.

THE warfare that has been waged between the supporters and the opponents of the electrical execution law of New York State has given rise to the most conflicting kind of testimony regarding the lethal force of the agent required to be used hereafter. Those who oppose the law are, at the same time, in most instances, persons whose interests lie in the more profitable and popular uses of electricity for motor or illuminating purposes; by some strange logic of their own they seem to argue that if the electrical execution law can be, and is, carried into effect, there will be a stigma placed upon the commercial applications of electricity.

In spite of a variety of statements to the contrary, it is probable that a trial of the means provided by the new law must be had in due time; and we have no fear that it will not prove adequate. Professor William H. Howell, of the Johns Hopkins University, says: "Anybody who has been unfortunate enough to have a very strong electric current pass through his system must suffer paralysis of some or all of the nerve-centers. This may be temporary or may be permanent. If the paralysis does not affect the vital parts of the human mechanism, the patient may live. . . . The descriptions of the apparatus in the infliction of the penalty which the New York criminal is to suffer show that there is little possibility of his escaping almost instantaneous death. His head is to be invested in a metallic cap, and the full strength of a very strong current sent directly through the centers controlling the mechanism of life. These must be immediately paralyzed, and the beat of the heart, as well as the breathing, cease. The brain must also be entirely paralyzed at once, and all consciousness be lost."

Such a statement will, to the medical mind at least, carry conviction. Until the test has been made and the facts are found to contradict these scientific propositions, we shall expect to see the new law obeyed. The contracts have been entered into, we are informed, with our State officials for the delivery of a suitable electrical plant to each of the three prisons where the extreme penalty of the law will hereafter be administered—at Sing Sing, Auburn, and Clinton. These prisons already possess the steam-power sufficient to drive the form of

dynamo that is ordered. The dynamo is said to be of the Westinghouse pattern of alternating current, electric-light machine; the pressure of the current will be equal to that used in the system of electrical illumination.

THE DISINFECTION OF THE HANDS.

MUCH has been written on this important subject, but we are rather hindered than assisted in our efforts to arrive at practical conclusions by the very excess of literature. Many of the recent articles give such elaborate directions for cleansing the hands that the general practitioner despairs of grasping so many details, the omission of a single one of which, in the opinion of the antiseptic enthusiast, vitiates all the rest and endangers the life of the patient. At least ten minutes must be devoted to washing the hands before making a vaginal examination, if we follow the teachings of a well-known writer on antiseptic midwifery, and some of our most careful and successful surgeons are equally thorough in their preparations for an operation. This is all very well for the gentlemen with whom this practice has become such a matter of daily routine that they are not obliged to stop and think of the various steps of the process, but the general practitioner, whose work is such that he really needs to exercise greater care than the surgeon, must have some shorter and equally reliable rules. It is, therefore, with no little satisfaction that we call attention to a recent article by Panschinger, in the "Münchener medicinische Wochenschrift," in which he reconciles his practical experience with the experiments of Fürbringer, who arrived at the conclusion that the thorough scrubbing of the hands with soap and warm water was more important than the use of any particular antiseptic solution. The latter's directions are briefly as follows: Clean the nails, scrub the hands for one minute with soap and warm water, immerse them for one minute in alcohol (ninety per cent.), and wash them for another minute in a solution of bichloride of mercury, one to two thousand, or in a solution of carbolic acid, one to thirty.

MINOR PARAGRAPHS.

VOLATILE OIL OF CORIANDER.

This substance has been made the subject of experiments by M. Cadéac and M. Meunier, who have reported upon them before the *Société nationale de médecine*, of Lyons, at a meeting the proceedings of which are reported in "Lyon médical." According to these investigations, the action of coriander is more like that of fennel than like that of anise. Unlike fennel, however, it does not cause convulsions, and the authors do not feel warranted in calling it a carminative. It causes a brief stage of excitement—all the briefer as the dose is larger—followed by blunting of the sensibility, muscular relaxation and inco-ordination, and the stupor of ordinary drunkenness. Its local action is only slightly irritant, and its effects are not materially different whether it is given by the mouth, by inhalation, or by intravenous or subcutaneous injection. It is said to kill the germ of færy in three days and that of typhoid fever in seventy hours. Meat impregnated with it becomes mummified.

RECIPROCAL TRANSFUSION.

A CORRESPONDENT of the "British Medical Journal," taking for his text Dr. Lauder Brunton's suggestion of washing leucocytes out of the blood of fever patients by injecting saline solutions, asks what the effect would be of mutual transfusion, one of the parties being a fever patient and the other a person proof against the fever by virtue of having had it. The blood of such a person, he thinks, would be better than mere blood from a healthy person who had not had the disease, on the hypothesis of its containing some element destructive to the micro-organism. The formation of such an element he considers a more probable cause of immunity from a second attack than consumption of the pabulum on which the micro-organism must subsist.

THE BACILLUS OF SENILITY.

SINCE Brown-Séguard's, no new elixir of life has actually been discovered, but Dr. Achille Malinconico feels confident that he is on the trail of one. In a brochure entitled "Trattato sulla possibilità della prolungazione illimitata della vita umana," mention of which we find in the "Deutsche Medizinische Zeitung," he unfolds his plan of operations. It rests upon the assumption that decay and death are not necessary phases of development, but the work of a specific micro-organism. On the principle of "first catch your hare," this organism must be identified, and Dr. Malinconico has no doubt that this will soon be accomplished, and that its destruction will then sink to the level of a mere detail. Until then, however, death still hath its sting and the grave its victory.

THE OPIUM HABIT IN BEASTS.

A WRITER in the "Annales de médecine vétérinaire," M. Jammes, a summary of whose article is given in the "Fort-schritte der Medicin," states that in countries where opium smoking is customary it is not uncommon to see cats, dogs, and monkeys that are much in the presence of men acquire a taste for opium in consequence of inhaling the fumes given out by the smokers. He cites three examples, one in a cat and two in monkeys.

ITEMS, ETC.

The Medical Microscopical Society of Brooklyn will hold its next meeting at the Hoagland Laboratory at 8.30 p. m., Wednesday, September 4th. Papers on the following subjects are announced for the meeting: "Intimate Structure of the Derma of the Skin"; "Silver Images in Inflamed Cornea."

Back Numbers Wanted.—If any of our subscribers or advertisers have numbers of the Journal for January 12 or May 4, 1889, which they do not care to retain and will send them to the publishers, they will confer a great favor.

The Metropolitan Throat Hospital.—During the past year the work of the Throat Hospital at No. 351 West Thirty-fourth Street has included attendance upon 10,036 patients.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 4 to August 10, 1889:*

SMITH, ANDREW K., Colonel and Surgeon. By direction of the Acting Secretary of War, leave of absence for seven days is granted. Par. 12, S. O. 178, A. G. O., August 3, 1889.

WOODHULL, ALFRED A., Major and Surgeon. By direction of the Acting Secretary of War, leave of absence for two months on account of sickness, with permission to leave the Division

of the Missouri, is granted. Par. 5, S. O. 178, A. G. O., August 3, 1889.

JANEWAY, JOHN H., Major and Surgeon. Leave of absence for two months is hereby granted, with permission to apply for an extension of two months. Par. 3, S. O. 52, Headquarters Division of the Pacific, July 29, 1889.

COCHRAN, JOHN J., Captain and Assistant Surgeon, now on duty at Fort Adams, Rhode Island, by direction of the Secretary of War, will report in person to the commanding general, Department of the Platte, for temporary duty with troops *en route* to and at the summer camp at Fort Robinson, Nebraska. Upon the completion of this duty, will return to his proper station. Par. 10, S. O. 180, A. G. O., August 6, 1889.

GORGAS, WILLIAM C., Captain and Assistant Surgeon. By direction of the Secretary of War, the leave of absence granted in S. O. 84, July 3, 1889, Department of the Missouri, is extended two months. Par. 2, S. O. 182, A. G. O., Washington, August 8, 1889.

BANISTER, WILLIAM B., First Lieutenant and Assistant Surgeon, by direction of the Acting Secretary of War, is relieved from further duty at Fort Wingate, New Mexico, and will report in person to the commanding officer, Fort Grant, Arizona, for duty at that station, relieving Captain ARTHUR H. TAYLOR, Assistant Surgeon, who, upon being so relieved, will proceed to Fort Wingate, New Mexico, and report in person to the commanding officer thereof for duty at that post. Par. 4, S. O. 178, A. G. O., August 3, 1889.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN SURGERY.

Meeting of May 13, 1889.

Dr. CHARLES A. POWERS in the Chair.

A Case of Double Empyema.—Dr. F. HUBER presented a patient, a boy fourteen years old, of whom he related the following history: On January 14th he had fallen to the ground, from a height of eighteen feet, and had been rendered unconscious for a short time by the blow. Those who happened to be near had drenched him with water. There had been no fracture of the ribs or the skull. A few hours subsequently the boy had been seized with a severe chill, followed by fever and sweating, and within a day or two it had become evident that he had a severe attack of double pneumonia. On the fifth day he had been found in a very precarious state, unable to sit up so as to allow of an examination, and for a week following life had been sustained by digitalis and camphor. After the third week the chest had given signs of the presence of fluid in large amount. On the twenty-seventh day a pint of pus had been removed by the aspirator. Nearly six weeks after the accident it had been found necessary to make openings for permanent drainage, and at that time shreds and also masses of lymph, besides pus, had been removed. At the third month the patient had been able to walk about, and the drainage-tubes had been dispensed with. The patient was in sound condition on the evening of the meeting, five months after the fall. The speaker believed the attack had been caused by the drenching the patient had received when in the unconscious state produced by the shock of his fall. He had delayed so long in establishing permanent drainage because the heart action had been so feeble. The case illustrated the fact that simple incision, drainage, and

washings out with hot water were an efficient means of dealing with even so severe a case of empyema as this had been. He would finally call attention to the tubes he had used for drainage and irrigation, which, by having a simple flange, had been made so that it would have been impossible for one of them to slip into the chest cavity.

Dr. R. T. MORRIS called attention to a form of drainage-tube devised by Dr. Phelps which had a flange to prevent its entering too far, and also a rubber valve which closed as soon as an inspiration began, but opened with each expiration. Any masses of lymph formed late in the course of an empyema were expelled with certainty.

Dr. A. M. PHELPS thought patients having empyema should be divided into three classes: 1. Those having simple empyema; that is, a purulent effusion, or, in other words, an effusion of serum afterward becoming purulent. Such cases should be regarded in a very favorable light; they did not present the granulating surfaces of the severer forms of the disease. The lung would expand when pus of this sort was removed, and this together with a certain amount of falling in of the chest wall, would rapidly close up the space left. 2. Those presenting the complicated form of the disease, in which large flakes of fibrin were formed and the serous surfaces had patches covered with granulation tissue. Here the more serious surgical measures would probably be needed. 3. Those patients in whom a tuberculous pulmonary abscess had broken into the pleural cavity and set up pyemia. All such died.

As regarded treatment, all abscesses required the same sort of treatment; the pus must be removed and the pus cavity must be obliterated by making its walls fall in on each other. If to effect the latter object we cut away two or more ribs, so as to allow the chest-wall to fall in, we gained the point desired. Some doubt had been raised in many minds as to the expediency of cutting open the chest cavity, on account of a danger of causing sudden collapse of the lung. In an experiment on a dog, exposure of the lung had been followed by collapse, and this had continued until a piece of glass had been fitted over the opening, when the collapsed portion had presently expanded again as respiration went on. In opening the chest for empyema, therefore, the aim should be not to destroy the expansion of the lung; and whenever, to aspirate the chest cavity, a drainage-tube without a valve was inserted the principle was violated. He believed that, as a rule, the chest should never be washed out in empyema unless decomposition had set in, and then Condy's fluid, and not bichloride of mercury, should be used to impregnate the water.

Dr. S. T. ARMSTRONG asked of Dr. Phelps the results he had got by operation in non-tubercular cases.

Dr. PHELPS answered that his success had varied with the causes to which the empyema had been due, and had also depended upon his getting the chest wall to fall in. In his four last cases all the patients had recovered. A number of cases had been recorded by Dr. Gerster where he had removed large portions of the ribs, with recovery in all.

Dr. ARMSTRONG remarked that in his own experience the results following resection had been disastrous, and had led him to feel that the principle on which the operation was based was not wholly correct. He agreed that air should be excluded from the chest. At the same time, the very fact that suppuration was going on in a given case indicated that micro-organisms were present, and these we should have some means of reaching and destroying; it was not necessarily attained by getting approximation of the inner surfaces of the cavity. In all his own cases where he had performed resection a sinus and a discharge of pus had persisted. He considered the case presented by Dr. Huber as one where drainage and washings had

had a successful result. In one of his cases where the patient had recovered (without resection) the same conditions had been present, and his treatment had likewise consisted of drainage of the cavity and thorough irrigation of the cavity with an antiseptic solution strong enough to destroy micro-organisms. The valved drainage-tube, excluding air as it did and allowing the lung to expand by its own tendency, seemed to him the best means of getting a return to normal conditions.

Dr. H. KOPLIK thought that when empyema occurred in children the prognosis was regularly more favorable than in adults; the latter were much more likely to recover with a crippled lung—*i. e.*, granulations followed by adhesions between the serous surfaces, or the beginning of tuberculous disease. In children the process was commonly a serous effusion which became purulent after a time.

Dr. HUBER said that he had sometimes diagnosed empyema as early as the fourth day of the illness, and he had often found the fluid in the thorax purulent from the first. His experience had been quite extensive, embracing thirty cases where he had operated in children. Early diagnosis was the important point in the management of these cases. If the incision was made before the lymph had become organized, the chances of a recovery were good. He had lost only one case, and there the drainage tube had slipped inside the chest. Weeks or months had sometimes been needed for complete recovery, but in none of his cases had a permanent sinus remained. As soon as the chest cavity was emptied of an effused fluid the ascent of the diaphragm and the returning mass of intestines went far toward effecting a closure of the recent space.

Excised Cancer of the Rectum.—Dr. PARKER SYMS presented a specimen of an excised rectal carcinoma, and the patient, a colored woman forty-four years of age, from whom the growth had been removed. Her health had been good until eleven months before the operations, when she had begun to suffer from piles, protrusion of the bowel, pains in the affected region, and bleeding. When she was first seen by the speaker a mass of scirrhus growth protruded from the sphincter, and the general health of the patient was impaired by the loss of blood and the obstruction to defecation. The diseased tissue had been found to extend upward for three inches, but the lymphatics of the region had not been involved perceptibly. The patient's condition had been so poor that he had not done the major operation until the fourth week after doing inguinal colotomy, by which her health had been much improved. He had then determined on the operation devised by Allingham, Jr., in which a circular incision was to be made at the sphincter and carried up around the diseased bowel to a point to which the process had not extended; then, having cut the bowel square off and removed the diseased lower segment, the operator was to draw down the healthy gut and stitch it to the sphincter. In the present case, in carrying out these procedures, it had been necessary to remove the entire posterior vaginal wall and to open the *cul-de-sac*, which had been left to granulate, after establishing drainage. His experience in this case, although the result had been excellent, was that the method was best suited to cases where the growth was low down, or just adjoining the anal outlet. The wound made in the present instance had been large and the exposed surface large. He had been compelled to open the peritonæum, and had exposed the patient to more danger than the case warranted.

Demonstration of the Mechanism and Anatomical Features of Subluxation of the Head of the Radius.—Dr. R. T. MORRIS read a paper with this title, with the presentation of a specimen. (See p. 684, vol. xlix.)

Dr. J. H. GIRDNER, while he considered the demonstration

good in its way, thought an element of doubt remained. A joint in a dead body must be a very different thing to deal with from the same joint during life. When the displacement was produced in a living body we had to take into account the swelling and pain commonly present; the traction of the muscles about the joint was not entirely overcome, either, by the anæsthetic. We could not make every deduction from a consideration of the position of the parts, etc., as seen in the dead body, therefore. The speaker had once made a series of experiments on dead bodies relative to the breaking of bones, and the results so obtained he had never been able to check by what he saw taking place in living subjects accidentally.

Dr. VAN ARSDALE, having examined the specimen prepared by Dr. MORRIS, remarked that the explanation proposed by the latter had been given by other investigators in times past, and had been specially considered in his own paper on the subject, recently read before the Section. It had first been advanced by Hugernet, but had been reviewed and discarded by Schrooble. It had also been considered as the most probable one by Dr. Stimson. The objections to the theory were that the action of the muscles in the living subject kept the capsule of the joint well out; and that it did not explain how the condition should be retained for three days and upward, as it often was.

A Hip-Splint for Tubercular Arthritis.—Dr. PHELPS presented a boy who was wearing an apparatus of this sort, consisting of a steel bar running along the inner side of the leg, and of attachments for securing abduction and extension of the limb and at the same time absolute immobilization of the joint. The great object to be secured was to enable the surgeon to control the effects of the reflex spasm in the muscles about the joint. Wearing this apparatus, no patient could recover with an angular deformity, and meanwhile walked about freely.

Dr. L. H. SAYRE thought that in many cases Dr. Phelps's device would be a very admirable solution of the difficulties presented by holding the joint in the position needed, and giving the physician good control of spasm, which Thomas's splint did not do. At the same time he considered that in many cases no upright piece was needed to prevent bending of the limb, and that in many cases a limited amount of motion might be allowed. It was not always necessary to make traction in the line of the axis of the neck of the femur, and relief from pain could be obtained by simple straight traction. The apparatus was excellently adapted to making lateral traction where that was needed, and the shoulder-piece was decidedly preferable to Thomas's shoulder-splint.

Dr. PHELPS insisted that it must be a mistake to allow motion in a joint in tubercular inflammation, for any motion favored the development of reflex spasm, and also broke up the new tissue being thrown out, set up fresh inflammatory action, and directly led to ankylosis. He never had a splint worn in bed. The long traction splint often used was certain to produce angular deformity, or else shortening and ankylosis. Traction, to be of real service, must be made in the line of the origin and insertion of the muscles affected with spasm, whether flexors, abductors, or adductors.

Compound Fracture of the Patella.—Dr. ARMSTRONG presented a patient upon whom he had operated for an injury of this sort with entire success. (See p. 174.)

Dr. MORRIS said he wished to speak of two matters in connection with these operations—the chances and conditions of obtaining bony union, and the sort of drainage best adapted to a perfect result. Any one who had cut down on a fractured patella could see how it was that the old tradition that no bony union occurred in the patella had held sway so long. When we considered the blood-clots which formed between the bony frag-

ments and the fibrous shreds from the torn capsule that were turned inward between the underlying pieces of bone, we might well question if bony union had ever taken place under the old methods of treatment. It was difficult enough to obtain bony union, even when we made an ample opening and dissected up the inverted ligamentous fibers. He had had three cases, and had obtained bony union in one; in the two others it had been impossible to bring the fragments into apposition. In a compound and especially in a complicated fracture of the patella it was always in order to lay open and wash out the parts, and to trim away the introverted fragments of the capsular ligament. For draining the wound he could recommend the absorbable bone drainage-tubes. They were needed to let out any excessive serous secretion that might occur; otherwise there should be no need of draining the joint. However, with the permanent dressing a tube should always be included to provide for a possible secondary infection of the joint while dressing it.

Dr. T. H. MANLEY asked for opinions as to whether the surgeon should make it a rule to remove the wires used to unite a fractured patella, or to leave them buried in the parts. He had had one case of compound complicated fracture of the patella. It had been received in a railroad accident, and the joint had been badly infected by sand, bits of paper and clothing, etc. Every precaution had been taken to get the parts into an aseptic condition. However, surgical fever had set in, and the patient had died in a few days.

The speaker had employed the wiring method in about eight cases, and had met with no unfavorable results, unless there should prove to be such in his most recent case, then under his care, in which for some unknown reason a purulent infiltration into the muscles of the thigh had been set up, and he had been compelled to make a number of incisions for drainage; however, the patient's condition was improving. While there were many things to encourage the surgeon in undertaking these operations, he still believed that complete bony union of the patella must always be an exceptional result. The patella was only a sesamoid bone and had no periosteum. Moreover, whether a fibrous or a bony union was secured, the fracture recurred very easily, as compared with the likelihood of recurrence when the shaft of a bone had been fractured. The speaker then related several instances of successive fractures of the patella. In a case under Dr. McBurney's care the patella had been re-fractured while he was making gradual and cautious movements of the limb to break up the stiffness in the joint, after the union of the recent fracture was thought to be complete and firm. Union was less likely to be lasting in proportion as the seat of the fracture was near to the junction of the ligamentum patellæ with the patella. But it was always a defective union, and an operation to bring about that union must always involve some additional dangers, unless, indeed, the joint had already been exposed by the trauma.

Dr. ARMSTRONG replied that while a number of instances were on record in which refracture had occurred, it must not be taken for granted that they occurred in the exact seat of the primary fracture. He had met with one case, and was certain the new fracture had run through a different part of the bone. He should expect after union had occurred that a refracture would be more likely to occur in any other part than the line of union. As regarded leaving in the wires, he could only say he had met with some instances where, on account of the irritation set up by them, a second operation had been required for their removal.

Demonstration of a New Medical and Surgical Battery.—Dr. J. H. GIRDNER exhibited a new battery designed to furnish with certainty any sort of current which might be de-

sired, and at the same time be readily carried about. That such a battery was needed, all who had endured the incessant vexations and disappointments connected with the management of even the best chemical batteries would probably testify. His device consisted simply of a battery of one, two, or more secondary storage cells (according to the amount of work required) which could be charged from a dynamo, or, if used in country practice, from the ordinary gravity cells. Once charged, such a battery supplied electricity of large amount, sealed up and portable, not liable to leakage, always instantly available, and convertible into any sort or strength of current desired. The speaker then attached the battery successively to a motor, a cauterizer, an electric arc light, and a faradaic vibrator, and decomposed water with the direct current. The expense was slight in view of the work done, a double-celled battery complete costing about fifty dollars. The battery improved with age. It was made and sold by Ford, of New York.

A Mechanical Device for making Roller Bandages.—Dr. HUBER presented such an instrument. It was so arranged that a bandage was evenly spread or sprinkled with plaster of Paris at the same time that it was wound on a revolving cylinder.

Objections were made by Dr. PHELPS and others that any mechanical bandage roller was apt to wind too tight a roll, so that it did not wet through easily; and, secondly, that a machine-made bandage did not have the lightness requisite in a bandage used to make a plaster jacket. A bandage could be rolled by hand and impregnated with plaster from which a corset might be made weighing but three pounds. A corset made from the machine-made roller weighed not less than eight pounds, and this difference in weight was a serious objection to the latter.

NEW YORK SURGICAL SOCIETY.

Meeting of May 22, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

Operation for Deformity resulting from an Unreduced Pott's Fracture.—The PRESIDENT presented a patient upon whom he had operated for the relief of a deformity due to faulty repair after Pott's fracture—a woman, aged thirty-one, who had been injured sixteen months previously. The fracture had involved the bones of the right ankle. The woman had remained in a hospital for two months. For some time after her dismissal she had walked about, and her use of the limb had somewhat improved for a year following, and still the result had been far from satisfactory. The foot had been markedly displaced outward and backward. He had operated on this patient on April 1st of the present year. He had begun by making two incisions—one beginning three or four inches above the tip of the external malleolus and carried downward and forward upon the dorsum of the foot; the other had been made on the inner side of the foot, beginning about two inches above the malleolus and ending on the inner side of the foot in front of the malleolus. It had then appeared that the foot was so far displaced backward as well as outward that it lay entirely behind the tibia. A large nodule of bone had formed in the torn internal lateral ligament, which completely prevented a reduction of the displaced bones. After its removal and division of the callus that united the broken fibula, he had found himself still unable to restore the astragalus to its true position, and on further dissection he had found a large bony growth forming a buttress or spur on the back of the tibia, against which the body of the astragalus was supported. After removal of this spur, reduction had still been prevented by the contraction of the muscles, and, as the articular cartilage of the tibia had in great

part disappeared, he had cut away enough of the upper part of the body of the astragalus to make reduction possible. The incisions were then closed, two drainage tubes were inserted, and a creolin dressing was applied. The course had been uneventful. The dressing had been changed once, and now, in the seventh week, there remained only a small superficial granulating surface over the internal malleolus. The foot, although still somewhat deviated to the outer side, was entirely serviceable, and there was some motion at the ankle joint—enough, he thought, to enable the patient ultimately to walk without a limp. He had not ascertained how this deformity had failed of being reduced at the time of the accident, but he thought it was not unreasonable to assume that it had been overlooked. The displacement backward, although evident, had not been so marked clinically as one would perhaps suppose. The heel had been prominent, and the foot shortened between the toe and ankle, but until the operation was done he himself had not recognized its full extent. The case exemplified the importance of great care in making and maintaining reduction after such fractures.

Dr. WILLY MEYER remarked that two cases of deformity, following a badly treated Pott's fracture and very similar to the one just described, had recently come under his observation. The deformity had existed for two months in one case and four in the other. Both patients had been markedly flat-footed and utterly unable to walk. The speaker had seemed to get the same good results as those obtained by the president by performing linear osteotomy just above the ankles and then reducing the foot. He had chiseled through the bones at the usual seat of Pott's fracture, and first overcorrected the deformity, the intention having been to put the foot into its normal position definitely at the time of the first change of dressing, twelve days after the operation. Both patients had recovered without fever or any other reaction, and now walked without difficulty. The speaker intended to present both patients before the society after the summer vacation.

Dr. FRANK HARTLEY asked whether it was possible to reduce the deformity in this way without taking out a wedge-shaped piece of bone, and whether Dr. Meyer had cut the bone with the osteotome transversely or obliquely.

Dr. MEYER replied in the affirmative; in both cases he had made the chisel pass through the tibia obliquely from the inner side below to the outer side above. There had been an abundance of callus, still quite soft, which had been readily passed by the chisel.

The PRESIDENT said that, strictly speaking, Dr. Meyer's operation was a correction of the functional disability, not of the deformity of the bones—that is, it brought the foot back directly under the shaft of the tibia and thus enabled it to bear the weight of the body without undue strain upon the internal lateral ligament, but it did this by shifting the lower end of the tibia also to the inner side. It left the abnormal relation between the astragalus and the lower end of the tibia and the fibula uncorrected. His own operation was designed not only to relieve the functional disability, but also to correct the displacement of the astragalus and to restore the malleolar mortise.

Dr. MEYER thought that the main result to be gained was to make the patient walk, and this in the easiest way; when the patient could step on the outer side of the foot he could walk.

Dr. C. K. BRIDGON thought Dr. Meyer's case quite exceptional and that the lesion had been one of minor degree. The very fact that the president had found it difficult to reduce the deformity after he had exposed the lesions of the bony parts would prove that it was difficult and quite exceptional to reduce such a deformity by osteotomy alone; and it also showed that

the operation of exposing the bony parts by adequate incisions was the safer of the two methods. He would be understood that he deemed it quite proper for Dr. Meyer to have used osteotomy in the way that he had, but he believed it would fail to accomplish the result desired in many cases, in which event an operation by open wound would be necessary.

The Surgical Treatment of Struma.—Dr. HARTLEY read a paper on this subject. (See p. 169.)

Dr. F. E. LANGE inquired of the author what plan he had for dealing with hæmorrhage when performing partial extirpations, either that occurring during the operation or secondary to it; also whether he had met with any severe cases of a cystic or adenomatous character.

Dr. HARTLEY replied that he had seen one case in which severe hæmorrhage occurred during operation, but never hæmorrhage of a secondary sort. In this instance the tumor was a vascular and partly substernal adenoma. The veins were irregular, large, and thin-walled. The hæmorrhage had occurred from the inferior thyroid and thyroideæ imæ veins. They had been isolated, but during ligation were torn. They were rapidly caught, however, and ligated again.

Dr. LANGE had seen two cases in which secondary hæmorrhage occurred, following severe vomiting as the patients recovered from the anæsthetic. It had been mostly venous in origin, and not attended by serious consequences.

Dr. BRIDGON referred to a case which had come under his treatment in the Presbyterian Hospital, which had been seen by a number of surgeons of New York, and in which there had been considerable doubt as to diagnosis. It occurred in a female about thirty years old, and she had been suffering some time from dyspnœa. There was a tense elastic swelling occupying the middle and left side of the neck. It rose and fell with the movements of respiration, and when prominent during inspiration it was resonant. On one occasion Dr. Lange had detected fluid by introducing a fine needle. The trachea was displaced to the right and compressed. The only diagnosis that could be arrived at had been that it was thyroid, solid, and cystic, situated in the mediastinal space, and complicated with a pneumocele. The tumor was exposed by a large V-shaped incision, and was found to be exceedingly vascular—so much so that the most careful manipulation was followed by copious hæmorrhage, requiring the application of a number of ligatures. A cyst was exposed and emptied and its edges were sutured to the integuments, and it was not deemed prudent to continue the operation. The patient was not benefited; the apnœa continued until her death two or three days afterward. The autopsy revealed the presence of a large vascular tumor involving the thyroid and situated deep down behind the sternum. The trachea had been displaced to the right, and its walls had been approximated by the pressure of the tumor. It had appeared to the speaker that this condition would have been temporarily relieved by section of the isthmus between two ligatures, and he had thought that after such section a more radical operation could have been made by turning the tumor to either side, until the supplying vessels had been reached and ligated. This would have endangered the laryngeal nerves, but he thought the operation could have been accomplished. It would have been impossible to accomplish anything in the ordinary manner, so thin were the walls of the innumerable vessels exposed in the wound. The speaker believed that in vascular hypertrophy or struma it was better not to open the capsule; the walls of the blood-vessels were so thin that when unsupported by the capsule they gave way at all points.

Dr. MEYER asked if Dr. Hartley had ever had the opportunity, in his operations, to follow the advice to apply an Es-march's bandage to the pedicle of the goitre. It was thus pos-

sible to perform the intraglandular shelling out of the diseased portions of the thyroid gland without the loss of a drop of blood. The plan seemed to present but little difficulty, as it was easy to raise the lobe out of its bed as soon as it had appeared in the wound, and apply the bandage.

Dr. HARTLEY replied that he did not remember ever having met with much hæmorrhage, but he thought a clamp placed on the isthmus of the gland would render an equivalent service.

Dr. BRIDDON asked what was meant by the pedicle.

Dr. MEYER replied that the term might be used to signify the portion of the lobe beyond the largest diameter and attached to the larynx and trachea. Of course there was no real pedicle of the goitre. A species of pedicle was formed merely by the application of the elastic ligature, especially after the shelling-out of the node or nodes by means of a blunt instrument. He had not yet tried the method himself, but should certainly do so in his next cases.

Dr. BRIDDON repeated the statement that in the case just detailed by him a large portion of the mass had been below the clavicle and beneath the sternum, upon which Dr. Hartley remarked that he had had a case of this kind where an operation for extirpation of the gland was performed. A portion of one lobe had extended an inch and a half below the sternum. The patient had suffered from marked asphyxia, and this had been at once relieved when the process of the tumor had been lifted out of the mediastinum.

Dr. LANGE asked if Dr. Hartley had seen any cases of malignant goitre.

Dr. HARTLEY replied that he had seen one in a girl. The cyst had opened like an abscess; the growth coming out of the opening three weeks afterward, when she entered the hospital, had suggested sarcoma. The lobe was removed and the mass cut down upon and removed as far as the upper border of the left lung. The patient now breathed well, but the disease would soon involve the trachea.

Dr. LANGE then cited two cases in which he had operated for the relief of the intense dyspnœa. In one case the tumor had projected into the trachea; at least, by the laryngoscopic mirror it had been possible to make out a mass protruding into the trachea below the vocal cords. It had been necessary to perform tracheotomy, which was done without an anæsthetic. The patient survived several weeks, and died of septic pneumonia, caused by the breaking down of the tumor and the inhalation of particles of purulent matter. The second patient had died on the table from either shock or asphyxia during an attempt to perform tracheotomy. Before the operation began the patient had been so cyanotic and so nearly asphyxiated by carbonic-acid poisoning that he had not dared to still further increase the dyspnœa by giving an anæsthetic. So the operation had been begun with the patient in a sitting posture, as lying down so increased the dyspnœa. It had been very difficult to find the deeply imbedded trachea. At last he found it displaced over to the right side, but before he could make an opening the patient had died. He opened the trachea when this had happened, and tried to restore life by artificial respiration, but without success. He had never yet performed a total extirpation of the thyroid body, but he had operated upon many cystic and adenomatous growths in this organ, and had never had to complain of ill-success. Most of his patients had recovered easily.

Some very practical advice had been given by Burkardt, of Stuttgart, with reference to cystic tumors, that we should distinguish between the capsule of the thyroid and that of the tumor. Sometimes the two lay close together, and here it was necessary to watch very carefully, for, unless the incision went through the capsule of the thyroid on to that of the

tumor, there would be much hæmorrhage, and difficulties would be met with at every step. Sometimes it might be necessary to cut through a layer of glandular tissue of more or less thickness to get to the surface of the tumor. In such cases considerable hæmorrhage sometimes took place. The same thing applied to adenomata.

The PRESIDENT instanced a case of malignant disease of the thyroid in which the dyspnœa had been so severe that he had feared to place the patient in a recumbent posture, or to give an anæsthetic. The operation was done under cocaine. The trachea was found displaced to the left and deeply imbedded in a mass of calcareous degeneration which existed at that portion of the diseased growth, but he had succeeded in giving the patient a respite which had lasted for some weeks.

Dr. B. F. CURTIS, speaking of the difficulty of recognizing the different layers of tissue which existed about the thyroid cysts, remarked that he had once removed from a woman a cyst of the size of a base-ball. At the outset of the operation he had made several false beginnings, getting between the wrong layers of the capsule, as the difficulties of dissection soon convinced him, and so, after trying several layers, he had come to the true capsule of the cyst, and enucleation had then been accomplished with no difficulty whatever. The combined layers which in this case inclosed the cyst had been no thicker than a piece of blotting paper. There had been absolutely no hæmorrhage during the operation.

Dr. MEYER remarked that a case similar to Dr. Curtis's had occurred in his own practice last summer. He had found it easy, after finding the true capsule, to shell out the cyst. He also wished to put on record a case which had recently appeared at the German Hospital of a Swedish girl having apparently numerous lymphatic swellings along either side of the neck, which were thought to be lymphomata until an operation was done for their removal, when it appeared that they were quite another thing. Eight different masses or swellings had been distinguishable before the operation along the side of the neck between the clavicle and the lower jaw on the left side, and seven on the right side. They had been irregular in shape, and so not identical with the oval swellings proper to lymphomata, but they had been movable. All had proved to be small goitres, each supplied by its own artery. It had been one of the rare cases of multiple goitre. Microscopical examination had shown them to be encystic parenchymatous degeneration. The patient had made a quick recovery.

Dr. HARTLEY spoke of a case which he had seen in Billroth's clinic at Vienna of a very peculiar goitre situated in the posterior triangle of the neck, behind the sterno-mastoid muscle, which had been found to be a tumor of an accessory thyroid gland. The speaker here added a list of all the possible situations in which accessory thyroid glands might be met with, the percentages in the different varieties of cases recorded, the presence of an accessory thyroid of any sort, etc.

Abdominal Hysterectomy.—The PRESIDENT showed a specimen, consisting of a uterus in a state of fibroid degeneration, which he had removed by the method of total hysterectomy described in the "New York Medical Journal" for March 9, 1889, the leading feature in which was the preliminary ligation of the uterine arteries. Some hæmorrhage had been encountered in this operation, the fifth that he had done. As before, he had divided the uterus above the cervix after applying the two ligatures, and so had removed the body of the tumor before removing the cervix. He had in this case made one of the incisions for the exposure of the uterine artery through the anterior layers of the broad ligament, instead of the posterior, as heretofore, but the result had been such that he should henceforth return to the previous plan of reaching all

the vessels from the posterior aspect of the broad ligament. In removing the cervix there had been considerable hæmorrhage, and five ligatures had been required. However, by this method of operation any bleeding vessel could readily be secured. The patient was now doing well, having had no temperature above 100° F.

Actinomycosis in the Right Epigastric Region.—Dr. LANGE reported that in the case of actinomycosis, of which he had given an account and shown the patient, and specimens under the microscope, at the previous meeting, he had since operated for removal, but without success. It had been found that the suppuration extended between the liver and diaphragm in the direction of the vertebral column. He had not been able to make out the bottom of the suppurating cavity. The tissues above the diaphragm were in all probability infected, so far as could be judged by the physical signs over the lower lobe of the left lung. The patient had never yet expectorated, but he had a short, hacking cough. A great mass of the actinomycotic matter had come out from the incised wound during the operation. The patient would probably succumb before long to the exhausting suppurative process that was going on. It was not now possible to remove the infected matter from its deeper ramifications.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

Eleventh Annual Congress, held at Washington on Thursday, Friday, and Saturday, May 30 and 31, and June 1, 1889.

The President, Dr. ETHELBERG C. MORGAN, of Washington, in the Chair.

(Continued from page 161.)

The Intimate Relations between Chronic Diseases of the Upper Air-tract and Neurasthenia.—Dr. W. H. DALY, of Pittsburgh, read a paper on this subject. (See p. 176.)

Dr. JOHN O. ROE, of Rochester: This is a subject which can not fail to interest us, because we all must have met with many such cases, and it simply illustrates the general effect which local irritation may have upon the system. The persistent nagging of a constant irritation will sooner or later produce a depressed condition of the system, and, unless we remove the local cause, we can not hope to relieve the general condition. It is useless to enlarge upon the subject, as most of us are familiar with it, and it should not escape our attention in cases of general debility that we must look for and remove causes of local irritation.

Dr. F. W. HINKEL, of Buffalo: I rise with some hesitation to express my opinion, on account of my limited experience as compared with that of the gentleman who read the paper. I can not concur in the opinion that has been expressed. It seems to me that before we admit that a general neurasthenic condition can be the result of any nasal lesion as the sole cause, or as the main cause, a careful analysis of all the constitutional conditions is required. I should be interested in hearing what the general treatment was to which Dr. Daly alluded. I admit that any local irritant would have its effect upon the neurasthenic condition, but that pharyngeal or naso-pharyngeal lesions can be the main cause of such a condition I am, from my own experience and general observation, hardly able to admit.

Dr. DALY: I hope that the gentleman will do me the justice to admit the caution with which I approached this subject. The title of my paper is "Some Discursive Remarks based upon having observed Intimate Relations between Chronic Disease of the Upper Air-tract and Neurasthenia." The problem I left largely for this body to solve, if it is within its power, as to which is the causative condition.

Dr. LANGMAID: I did not understand Dr. Daly to say that the condition was due to disease of the nose, but that there was

an intimate relation I did understand him to say. I should differ with Dr. Roe, and should consider that much of the trouble in the nose was from the neurasthenia. I am sure that is what Dr. Hinkel means. So often is this the case that operative interference fails to relieve the patient because the neurasthenia is not cured.

Dr. MACKENZIE: I do not like to speak upon this subject, for I am afraid that I should keep the society too long. In my paper, read at the meeting in Philadelphia, I made the statement that very frequently in nasal troubles—as, for instance, in hay-fever—the local symptoms are due in a certain class of cases to the neurasthenia, and, until the general condition is relieved, the local treatment is without avail. It is a curious historical fact that this peculiar dullness and incapacity for vigorous intellectual work, dependent upon chronic affections of the nose, was recognized by the ancients. A number of classical writers—for instance, Cicero—mention this curious fact.

Dr. SAJOURS: I am inclined to support rather vigorously the remarks made by Dr. Daly. It has been my fortune to observe a number of cases in which I noted fluctuations in the nervous condition, and these corresponded with fluctuations in the conditions within the nasal fossa. I have now under treatment a gentleman who, some months ago, had an operation for deviated septum performed by a fellow-specialist. The operation was done because all treatment directed to the general systemic condition had been without benefit. After the nasal trouble had been corrected the gentleman immediately began to improve, and the general neurasthenic condition, although it did not quite disappear, was materially improved, and he was able to resume his duties. I am sorry to say that the secondary treatment of the case was not such as to maintain the condition obtained immediately after the operation. The septum, as often happens in these cases, returned to its original position, and at once there was a marked return of the general symptoms. Having undergone a second operation, with a carefully conducted secondary treatment, the neuralgia and other symptoms not only disappeared as they had before, but they did not return. In this case we are able to follow the fluctuations as the case proceeded, and to note the marked benefit brought about by treatment of the nose.

Dr. DALY: The imperfect manner in which I have been compelled to present this subject does not do either myself or the subject justice. I would say that the remarks of my friend, Dr. Roe, have a great deal in them. I believe that he has epitomized a great deal that is valuable—that is, that this local irritation, this local obstruction, which is a source of continual nagging and local irritation year after year, is borne by the patient because he does not know where to get relief, or is in the hands of a practitioner who will not see these conditions or admit that others can see them, and therefore temporizes with the case until some acute disorder comes on, and with it an explosion, so to speak, of one of the forms of neurasthenia.

While the presentation of the subject may seem crude and rather bold, I assure you that it is a modest presentation. I have had sufficient observation, with flattering and lasting results in treatment, to warrant me in re-uttering what I said to you with fourfold force if it were in my power, that local treatment alone, leaving the neurasthenic condition out of the question, is necessary, is advisable, is right, and that such local treatment will be sufficient of itself to cure, and it will be surely followed by relief from the disagreeable and troublesome neurasthenic symptoms. I say *followed*, and I say it *advisedly*. These symptoms come on late in the history of the case, and they take their departure late. In other words, the physiological and anatomical condition of the intranasal structures can be made as near normal as possible, but still the neurasthenic

symptoms will linger. The patient will not be cognizant of any general improvement, possibly of no local improvement at once, but tell the patient to wait. It will come in one or two months or perhaps a year, but it will surely come, and come to stay.

In regard to the question of general treatment. I do resort to general treatment, which is very simple and rational. In these cases of neurasthenia, while the predisposing cause may be, and I believe that it is, a local condition, there is a condition of deficient nutrition co-existing, and I direct mild remedies, but not frequently given, to act as a fillip to the secretions. I give a mild hepatic stimulant once or twice a week at bed-time, such as a quarter of a grain of calomel with fluid extract of senna, with something to prevent griping. This is simply a stimulant to the liver, and it gains these certain ends, not suddenly, but gradually. Other than that, I do not rely much upon internal remedies. I do not believe in the phosphates, which I regard as a once popular fad now moribund. I depend largely, and would not hesitate to depend entirely, upon restoration of the intranasal structures to what would be considered a normal anatomical and physiological condition.

Book Notices.

Examination of Water for Sanitary and Technical Purposes.

By HENRY LEFFMANN, M. D., Ph. D., Professor of Chemistry in the Woman's Medical College of Pennsylvania, etc., and WILLIAM BEAM, M. A., Demonstrator of Chemistry in the Pennsylvania College of Dental Surgery. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. vi-9 to 106.

This little manual does not purport to be a work on general hygiene or sanitary chemistry, but is devoted to the subject indicated by its title. It treats first of the history of natural waters and then of analytical examinations, both sanitary and technical, with the interpretation of the results. Modern processes are given rather than time-honored ones which have been shown to be inaccurate, so that some which hold a prominent place in most books on the subject are here omitted. The work is sufficiently complete for its purpose, well written, concise, and clear, and will be of good service to the sanitarian.

BOOKS AND PAMPHLETS RECEIVED.

Retrécissement cicatriciel du larynx d'origine syphilitique. Trachéotomie datant de six ans. Dilatation quotidienne, de haut en bas, du retrécissement, pendant six mois, par les sondes en caoutchouc durci de Schroetter; guérison. Par le Dr. Gouguenheim, médecin de l'hôpital Lariboisière. [Extrait des "Annales des maladies de l'oreille et du larynx."]

Contribution à l'étude des corps étrangers des voies aériennes. Par le Dr. E. J. Moure, Professeur libre de laryngologie, otologie et rhinologie, etc. (Communication faite à la Société de médecine et de chirurgie de Bordeaux.) Paris: Octave Doin, 1889. Pp. 5-24.

Report of a Case of Stricture of the Rectum, the Probable Result of a Specific Vaginitis. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the "Medical and Surgical Reporter."]

Inversio congenita dell' istinto sessuale in due donne. Pel Dottor Angelo Zucarelli, di Napoli.

Transactions of the Southern Surgical and Gynecological Association. Volume I. Session of 1888. Birmingham, December 4th to 6th.

A Surgical Hand-book: for the Use of Practitioners and Students. By Francis M. Caird, M. B., F. R. C. S. (Ed.), and Charles W. Cathcart, M. B., F. R. C. S. (Eng. and Ed.), Assistant Surgeons, Royal Infirmary, Edinburgh. With very Numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xv-262. [Price, \$2.50.]

The Urine, the Common Poisons, and the Milk. Memoranda, Chemical and Microscopical, for Laboratory Use. By J. W. Holland, M. D., Professor of Medical Chemistry and Toxicology, Jefferson Medical College of Philadelphia. Illustrated. Third Edition, revised and much enlarged. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. vii, 9 to 84. [Price, \$1.]

Bournemouth as a Health Resort. By A. Kinsey-Morgan, M. R. C. S. Eng., etc., Member of the Sanitary Institute of Great Britain, Medical Officer of Health for Bournemouth, etc. With Illustrations. Bournemouth: F. J. Bright & Son, 1889. Pp. 5 to 98.

Suspension in the Treatment of Affections of the Spinal Cord. By Alexander B. Shaw, M. D. (Read before the St. Louis Medical Society, June 15, 1889.)

Corea in seguito a scarlattina. Nota clinica del dott. Umberto Dieci. [Estratto dalla "Rassegna di scienze mediche."]

The Sixteenth Annual Report of the Metropolitan Throat Hospital for the Treatment of Diseases of the Nose and Throat, 351 W. Thirty-fourth Street, New York.

On Spasmodic Urethral Stricture from Anal Fissure. By L. Bolton Bangs, M. D., Surgeon to St. Luke's and Charity Hospitals, New York. [Reprinted from the "Medical Record."]

Accumulators and their Medical Uses. By Robert Newmann, M. D. [Reprinted from the "Philadelphia Medical Times."]

The Annual Report of the Department for the Insane of the Pennsylvania Hospital. For the Year ending Fourth Month 22d, 1889.

The Natural Rectification of Malpresentations, and its Imitation by Art. By A. F. A. King, M. D., Professor of Obstetrics in the Medical Department of the Columbian University, Washington, D. C. [Reprinted from the "American Journal of Obstetrics and Diseases of Women and Children."]

Pelvic and Abdominal Drainage. By David Prince, M. D., of Jacksonville, Ill. [Reprinted from the "Transactions of the American Surgical Association."]

Two Suggestions for improving the Operation of Excision of the Knee Joint for Strumous Disease. By A. G. Miller, M. D., F. R. C. S. Ed. [Reprinted from the "Edinburgh Medical Journal."]

A Plea for Prompt Interference in Abdominal Diseases. By J. M. Baldy, M. D., Philadelphia, Pa. [Reprinted from the "Medical and Surgical Reporter."]

Thirty Consecutive Cases of Abdominal Section, with One Death. By J. M. Baldy, M. D., of Philadelphia. [Reprinted from the "Medical News."]

Reports on the Progress of Medicine.

CUTANEOUS AND VENEREAL DISEASES.

By GEORGE THOMAS JACKSON, M. D.

Thiol is one of the latest additions to the dermatological pharmacopœia ("Monatsheft f. prakt. Derm.," 1889, No. 7). It is allied to ichthyol in its chemical constitution, but is a production of the laboratory and much cheaper than ichthyol. It occurs in two forms—either a liquid or a powder. As it contains sulphur, and is readily miscible with water, a wide use for it is at once suggested. It has been found useful in seborrhœa, rosacea, acne, eczema, combustio, pemphigus, dermatitis herpetiformis, impetigo, zoster, etc. In most of these the powder was used in the proportion of twenty per cent. in talc, starch, or zinc oxide.

The Treatment of Zoster, according to Unna (*ibid.*), varies with the degree of development of the lesions. To abort the development of the lesions is acknowledged to be exceedingly difficult, and requires very early interference, for, once begun, the vesicles will develop in spite of treatment. In some cases painting the affected spots with ichthyol, or applying equal parts of zinc paste and resorcin, will abort the vesicles. Another method is to cover the place with a layer of wadding soaked in a ten-per-cent. ichthyol or resorcin solution, and covering this with a piece of adhesive-plaster muslin, a dressing that can be left on many

days. If vesicles have formed, they can be prevented from becoming purulent by applying to them a zinc-sulphur paste, or alcoholic solutions of corrosive sublimate, iodoform, carbolic acid, or resorcin.

A New Treatment of Acne.—By this attractive title Startin ("Lancet," May 11, 1889, p. 934) describes a method he has recently employed with success. It consists in steaming the face by means of a steam atomizer. The process should be kept up for some twenty or thirty minutes, and the face then gently rubbed with a soft towel. Tincture of benzoin may be used in the medicine cup.

Acne Frontalis seu Necrotica is the name that Boeck, of Christiania ("Archiv f. Derm. u. Syph.," 1889, Heft 1, p. 37), prefers to acne varioliformis (Hebra), acne pilaris (Bazin), and acne atrophica (Bulkeley). This form of acne, though well known to dermatologists, is little, if at all, recognized by physicians in general, and is one of the rare forms of skin disease. The case related in this article was remarkable for occurring not only on the face, but also on the breast, neck, and back. The lesions on the back were specially well pronounced in character. All the lesions begin as very small papules originating in the swelling of a hair follicle and its immediate neighborhood. These papules slowly enlarge, and when they reach the size of a hemp-seed and cause a certain amount of tension in the skin, a lot of very small hæmorrhagic points will appear in their centers, forming a small, delicately marked, violet-red spot. If the papule grows large enough to include several follicles, it will form a turgid, raised, quite firm and flat patch, of a punctate appearance and a bright violet color. After a time these lesions begin to sink in in the middle, and take on more of a brownish-violet color. These changes are continuous, till at last the whole patch sinks in, and lies in the skin as a sharply defined, circular, hard plane, of brownish-violet color, slowly changing to brown, presenting the appearance of a mummified piece of skin. The sensibility of the patch is preserved. If the surface is removed by emollients, a granulating ulcer is left behind. If left alone, the mummified skin will fall of itself, leaving a scar. The larger the lesion, the deeper this process of necrosis goes. The disease may return in the scars, and is prone to relapse. It is a sort of dry gangrene of the skin whose aetiology is unknown.

Xanthoma Multiplex Planum, Tuberosum, Mollusciforme.—Dr. Lehzen and Dr. Knauss, of Würzburg ("Archiv f. path. Anat. u. Phys.," etc., 1889, cxvi, Heft. 1, p. 85), give us a study of this interesting disease as found in two sisters—one eleven and the other nine years old. The parents were healthy, and there was no history of any skin diseases in the family. There were two other children in the family that were free of skin troubles. The older girl was always delicate, having had an attack of jaundice shortly after birth. In the third year of life she had "festers" over her whole body for a long time. In April, 1887, she passed through measles, and entered the hospital in November, 1887. She came into the hospital on account of the xanthoma, which began in her fourth year, on both eyelids, as yellow, slightly raised papules. In about a year afterward the spots appeared on both knees and hands; later on the elbows, the gluteal region, and the left heel. The right heel was attacked about one year later. All the spots increased in size. Subjective symptoms were absent, except a slight amount of itching at the time of the appearance of new lesions. The only other abnormal symptom was insufficiency of the mitral valve. Various tumors were excised under chloroform anaesthesia. The patient died of heart failure about a month after the last operation. At the autopsy the liver was found of a deep bluish-red color, and with its free edge markedly high. On the valves of the pulmonary artery yellowish, xanthomatous papules were found, and a great number of these bodies were scattered about the heart and great vessels. The younger sister showed the same skin disease, but of less pronounced grade, and there was no heart trouble. Her trouble began in the third year, after a vesicular or bullous skin affection of uncertain nature. The peculiarity of the first case was the affection of the intima of the blood-vessels; and the practical lesson is that we should examine patients for heart symptoms in order to qualify our prognosis.

The Anatomy and Histology of Verruca Vulgaris.—After describing in detail his methods of preparation and study, Kühnemann ("Monatsheft f. prakt. Dermat.," 1889, No. 8, p. 341) gives the following as the result of his study: The pathological process of wart formation is one of

anomaly of growth, the type of which is purely epithelial, the cutis as such taking no part in their formation, and the papillary character of the wart resulting from the hypertrophied prickle-cell layer sinking down into the cutis. The warty growth begins in the prickle-cell layer, hypertrophy forcing the layer upward and downward. It is probable that some external source of irritation—perhaps the entrance of micro-organisms into the epithelial layer of the skin—produces proliferation of the cells of the stratum dentatum, and as a secondary effect irritation and dilatation of the papillary blood-vessels and the larger vessels of the cutis, an increased supply of blood, and consequent increased nutrition of the tissues. Hence an alteration in structure of the upper layers of the epidermis takes place, and the process of cornification is essentially modified. The process, then, is not merely one of hyperkeratosis, as Auspitz and Hebra teach—that is, so far as verruca vulgaris is concerned—for the prickle-cells do not change into the usual flattened cells of the corneous layer, but preserve, more or less, their original form, and their kerato-hyalin is present, either in very small amount, though evenly distributed through the layers, or is abundant in the interpapillary portions, and entirely wanting over the papillæ. The nuclei of the cells of the corneous layer are preserved. The corneous layer is less lamellated than usual. Warts are, then, keratoses of the order dyskeratoses, and not elongations of the papillæ of the cutis vera.

The Cure of a Case of Sclerema Neonatorum by Mercurial Inunctions is reported by Money ("Lancet," March 16, 1889). There was no history of syphilis in the case, and the cure was nearly complete after about six weeks' treatment.

Mycosis Fungoides has again been studied histologically, this time by Dönitz and Lassar ("Archiv f. path. Anat. u. Phys.," etc., 1889, cxvi, Heft 2). They conclude that the disease is not due to a parasite. Though cocci are found in the lymphatics and capillaries, these are results and not causes of the disease. Mycosis fungoides, though resembling sarcoma histologically, differs from it in so many respects that for the present it is best to regard it as a special form of new growth of undetermined classification.

Nerve Lesions and Hair-fall in Relation to Alopecia Areata.—Behrend ("Archiv f. path. Anat. u. Phys.," etc., 1889, cxvi, Heft 1) declares himself as still satisfied that the characteristic change in the hairs in alopecia areata is an infiltration of the hair with air. This he has never found in any other disease of the hair, and has quite constantly found it in alopecia areata. He believes that the fall of the hair in alopecia areata is probably due to some local disturbance of the circulation. He has repeated Joseph's experiments that seemed to prove that the hair-fall was due to a trophoneurosis, using white cats. The experiment was repeated three times on different cats; each time there was redness of the ear of the side operated on, the auricularis magnus being the nerve cut. In all, the redness did not last very long. Cutting the sympathetic had the same effect, though more pronounced. This showed that vaso-motor fibers ran in the course of the second cervical nerves, but that the disturbance was of too short duration to cause the alopecia. Between different species there exist great differences in the distribution of the vaso-motor nerves. They do not exist in the roots of the cervical nerves of the dog, but are found in those of cats and rabbits. To test Joseph's theory, a series of experiments (nine) were performed. In but one of the cases was there alopecia, and this followed the formation of a crust and was passing. The cats were, all but one, killed and dissected, and it was found that the ganglion had been fully cut in two. By these experiments the theory of Joseph is pronounced not proved. [In the succeeding number of the "Archiv" Joseph replies, and so the controversy is kept going.—Ed.]

Some Hair Recipes.—Lassar, of Berlin, in 1882 published, in connection with our fellow-countryman, Bishop, an account of some experiments tending to show that alopecia præmatura was contagious, and could be cured by antiparasitics. In this article ("Therap. Monatsheft," 1888, No. 12) he still insists upon the contagiousness of ordinary baldness and its spread through the agency of barbers, and the employment by several persons of one comb in common. Even though as yet no definite parasite has been found in alopecia, Lassar believes that there is one and that it will be found in time. He does not believe that alopecia areata is a neurosis, though he allows the possibility of it in a few

cases, but does believe that most cases are from contagion. In the past few years he has met with many hundreds (?) of cases of alopecia areata, many of which have been in relatives, patrons of the same barber-shop, school-mates, or possessors of dogs or cats having similar bald spots. In the belief of the parasitic origin of alopecia, our author has treated more than a thousand cases by means of an antiparasitic plan of treatment, and with marked success. His method is the following: For six to eight weeks the hair is washed with a soap rich in tar (Berger's), the suds being rubbed well in for ten minutes each day. Then the suds are washed out with warm, followed by cold, water, the scalp and hair dried, and the former anointed with R Sol. hydrarg. bichlor. (one third of one-per-cent. strength), glycerin, and cologne water, equal parts; then rubbed dry with absolute alcohol containing one half per cent. of naphthol, and then anointed with R Salicylic acid, ζ ss.; tincture of benzoin, gr. xlv; neat's-foot oil, ζ iij. M. After six to eight weeks the process is to be less often repeated. In obstinate cases the sublimate solution should be used many times a day. Or this salve may be used: R Carbolic acid, 15 grains; sublimed sulphur, 65 grains; horse-neck fat, to ζ ij. M. Another good stimulant is oil of turpentine, either with equal parts of an indifferent oil or with dilute alcohol. Another is pilocarpine hydrochloride, 30 grains; vaseline, 5 drachms; lanolin, 2 ounces; oil of lavender, 25 drops. M. Tar is good; and as a final formula we have: R Pilocarpin. hydrochlor., 30 grains; quin. hydrochlor., 1 drachm; sulph. præcipitat., 2½ drachms; balsam. peruv., 5 drachms; medul. bovin., ad ζ iij. M.

Trichophytosis Dermica.—Campana, of Genoa, believes that the trichophyton is capable of germinating and growing in the connective tissue of the skin ("Archiv f. Derm. u. Syph.," 1889, Heft 1, p. 51), and, further, that the chief part of such tumors as are formed in connection with ringworm is composed of the fungus itself. He gives a case of diffused ringworm of the body, onychogryphosis of all the toes, and a tumor of egg size (location not stated). Mycelia and spores were found not only in the scaly patches, but also in the nails and in the tumor. The latter consisted of hard fibrous connective tissue, which in places showed signs of beginning necrobiosis.

The Anatomy of Scabies.—Török, an assistant of Unna's, has examined seven cuniculi of scabies, and believes ("Monatsheft f. prakt. Dermat.," 1889, No. 8) that most of the previous teachings in regard to their anatomy is wrong. He says that the cuniculi are located, not in the prickle-cell layer of the skin, but in the lowest part of the middle corneous layer. The eczema to which scabies gives rise is not excited by the scratching, but is caused, probably, by some irritating substance secreted by the itch-mite. The new and smallest vesicles are usually just below the cuniculus, and grow downward, and therefore are not produced by the scratching. Further, a foreign body in the epidermis does not of itself cause much itching; and the moving about of the mites in the epidermis does not account for the paroxysmal itching so well as a paroxysmal secretion of an irritating substance by them would. Of course the scratching due to the itching aids in the production of the clinical picture that we recognize as scabies.

Ringworm is studied by Pellizzari, of Pisa, in the "Giornale ital. del. mal. ven. e del. pelle," March, 1888. He first speaks of *ringworm of the palm*, of which he has seen seven cases. It is usually accompanied by manifestations of the same disease upon the back of the hand, but may occur on the palm alone. Usually only one hand is affected. It generally assumes the appearance of a chronic eczema, with special changes in the nails. Sometimes it looks like a dysidrosis; sometimes like a hyperkeratosis; sometimes like an eczema rhagadiforme. The microscope shows a number of mycelia, but no spores in the epidemic scales. The disease is very chronic, often lasting for years. He next describes the three varieties of *tinca tonsurans*, and speaks especially of one variety that resembles very closely and is often taken for alopecia areata. This occurs in the form of more or less round, bald places, without any eruption upon the scalp, redness, or other sign of dermic reaction; covered with fine, dirty-white, or yellowish scales, often having in their center a black point, the remnant of a hair broken off near the surface of the scalp, and filled with the spores of the fungus. This variety is one of the most difficult to cure, and may last for years, one case having been seen in a patient, forty-four years of age, which had lasted nearly all her life. He then speaks of *ringworm of the beard*, and of

cases which, under his observation, changed in appearance and symptoms to a simple sycosis. This leads him to believe that many cases of sycosis have originated in trichophytosis. He explains this on the theory that the presence of the fungus at one time gives rise to an irritation that continues even after the fungus has disappeared. He has found the trichophyton present not only in the epidermic structures of the skin, but also in the derma itself, where it exists mostly in the form of spores. He believes that in many of the cases of simple sycosis in which no broken hairs are present and no fungus demonstrable in epidermis, hair, or contents of pustules, it is possible that the fungus is still in the derma, and there keeping up the irritation that gives rise to the sycosis.

But the most important part of this study is that which relates to *onychomycosis*. This form of ringworm seems to be much more common in Italy than it is with us, for our author had twenty cases of it out of one hundred and fifty cases of trichophytosis in the course of thirty months. Out of nineteen cases, nine were in males. The youngest was aged twelve years, and the oldest was fifty-seven. In four cases the disease was limited to one finger; in two to several fingers of one hand; in two it was spread over the fingers of both hands. In all of these there was no other evidence of the disease elsewhere on the body. In five cases ringworm of the palms was present, in three the scalp was affected, and in three there was ringworm of other parts of the body. The disease seems to first manifest itself by a change in the color of the nail, which appeared as if dotted over with little white points, distributed without order, or as if striated with white longitudinal lines. These lines have a reflex like that of quartz, as if the nail had split. The nail soon becomes uneven, which is readily apprehended by sight and touch. The nail has become thickened, but the thickening is more manifest in the white lines, as there the normal lines of the nail are exaggerated. Sometimes this may occur on only one side of the nail, and then that side will be raised and curled up, while the nail substance is greatly thickened, and some of the superficial corneous laminae are detached. Generally, however, the whole nail is affected from lunula to free border. At times the nails have their superficial laminae intact and transparent, but they are thickened and of a white color. This condition may last for years. The nail-bed likewise becomes thickened so as to obliterate the anterior or subungual sulcus, and the nail itself often becomes eight to ten times as thick as normal, or even more. The surface of the nail becomes marked by transverse lines, especially on the anterior border of the lunula, which is, as it were, hunched up. Sometimes the thickening takes place along the median line of the nail so as to make it raised in the middle, but usually it is general, and the nail has its normal convexity increased. Sometimes onychogryphosis is present. The superficial laminae are the last to be attacked, and when they are, they become opaque, begin to exfoliate, break, and at last fall off entirely, separating first at the periphery and anteriorly. At times the nail looks worm-eaten, on account of the falling out of the whitish spots above mentioned. When the disease is well developed, the nail is rough, and the upper layers look as if they were torn up and frayed out. Subjective symptoms are wanting, and patients seek relief either on account of the ragged nail being in the way of their work or on account of the manifest deformity. At most there is a little itching of the finger end, or slight pain when the part is exposed to heat, as of the fire or warm water.

The diagnosis of trichophytosis of the nail is difficult when it occurs by itself without disease of the skin elsewhere. It might be mistaken for onychogryphosis. Here the diagnosis would be suggested by finding other nails more or less affected with trichophytosis in its early stages, by the fact that, combined with the hypertrophy of the nail, there is also a retrogressive degeneration, while in onychogryphosis the hypertrophy is progressive, and there is great thickening of the corneous layer of the nail. In the latter the nail is dark-yellow, but always bright, and throughout the structures of the nail are uniformly thickened. The diagnosis from favus of the nail is made by the fact that favus attacks primarily the superficial corneous laminae of the nail, producing a number of little, depressed, saucer-shaped points, without special color. At the same time there will usually be found other evidences of a chronic favus on the hands. In favus, as in ringworm, there is an apparent great thickening of the nail, but in the former case it is

due to a soft, yellowish-brown substance interposed between the nail and its bed, pushing the substance proper of the nail upward, while in the latter there is a true thickening of the nail substance. In favus there are also little points of sulphur-yellow color scattered here and there through the nail, which are easily seen. They advance from below, and finally perforate the upper layers.

As the fungus is always deeply seated in the nail and its bed, it is useless to speak of treatment by means of scraping the nail and applying antiparasitics. The treatment, to be efficacious, must be energetic enough to cause an artificial paronychia, produce suppuration of the nail, and in this way kill the parasite. A good plan is to keep green soap upon the nail under a rubber cot for a few days until the nail is softened. Then apply equal parts of olive-oil and pyrogallic acid, endeavoring to cause it to enter beneath the nail and into the sulcus. When the nail loosens, it is to be removed, and the finger dressed with iodoform.

Tubercular Skin Diseases.—Pick ("Prag. med. Woch.," 1889, No. 19), while believing that we are far from having reached our full knowledge of tubercular skin diseases, says that at present we are justified in applying that term only to the following: Tuberculosis cutis propria of Chiari, lupus, so-called scrofuloderms, the tuberculosis verrucosa of Richl and Paltauf, and the verruca necrogenica of Karg and the last-named authors. He reports one case of verruca necrogenica, which he cut out, together with an enlarged cubital gland. In the latter was found a cheesy mass. He also reports a case of tuberculosis verrucosa in a tuberculous subject, in which there were multiple lesions, all resulting from self-infection by means of the sputum. Two cases of lupus are reported. One was of the nose and upper lip in a tuberculous subject, lungs and larynx being affected. Many bacilli were found in the secretion of the lupous ulcer. The second case was likewise on the nose, cheek, and eyelids. The patient was of a tubercular family. Many bacilli were found in the secretions of the ulcer. Both cases resembled tuberculosis cutis, the resemblance arising from the vascularization of the parts, their maceration from secretions, and the high temperature of the locality. Another case is reported of papillomatous lupus in a strumous subject, beginning as an ordinary verrucous lupus, and changing after measles into a hypertrophic, inflammatory, papillomatous lupus, with rapid dissemination and tubercular infection of the neighboring glands. As benign lupus may thus become active, and take on the characters of tuberculosis cutis, every lupous patch should be destroyed early, and the neighboring glands extirpated where they are involved.

Scrofula or Syphilis is the title of an instructive article by Mannino, of Palermo, in the "Giorn. ital. delle mal. ven. e della pelle," 1888, xxiii. After citing several cases to show how difficult it sometimes is to make a diagnosis between the two diseases, he gives us the following diagnostic marks: The color of the syphilide, either of the elementary lesion or the surrounding areola, is dark red, reminding one of the color of copper or of lean ham; lupus is of a pale rose, or a rosy golden color, with a tendency, especially in the areola, to a bluish tinge. The consistence of the syphilide is hard and resistant to pressure; that of lupus is soft and elastic. The crusts of ulcerating syphilides are dark, brownish-green, or black; those of the scrofulides are usually white or dirty white; in syphilis they are regularly formed, hard, stratified; in lupus they are but little prone to be homogeneous, and but slightly dense and hard. The ulcers of syphilis are sharply cut, with hard, infiltrated edges, deeply adherent to their bases; those of lupus are less sharply defined, and the edges are flaccid, soft, often separated from the floor of the ulcer. The floor of the syphilitic ulcer is more or less deeply hollowed out, uneven, irregular, covered more or less by a grayish-yellow, yellowish-crimson, or lardaceous plaster-like excretion, resulting from the necrobiosis of the gummatous tissue; in old cases of lupus, the floor is slightly or not at all hollowed out, rather raised above the level of the surrounding parts, of a rosy or pink color, often smooth, as if covered by a kind of transparent, easily detachable varnish. The shape of the syphilide is ordinarily gyrate, representing a complete circle or an arc of a circle, a half moon, or only a serpentine undulation; the scrofulide, although at times round or circinate, is usually less regular and more variable. The course of lupus is very chronic, extending very slowly, and destroying the tissues cell by cell;

syphilis develops rapidly, extending as much in a few months as lupus would in as many years, destroys the tissues in mass, and often becomes serpiginous. The history of the two diseases is different, in one pointing strongly to syphilis, and in the other to lupus, and this not only in the personal history of the patient himself, but also in that of his parents and immediate relatives. At present neither bacteriology nor histology is well enough established to furnish positive evidence in any particular case. In truth, the two diseases may in certain cases resemble each other so closely that a diagnosis can be made only by a most careful comparison of all the symptoms.

Precocious Manifestations of Congenital Syphilis is the title of a series of articles in the "Progrès médical" for 1888-'89, by Sevestre. Lenticular erythema is a papular eruption, with erosions at times, which may occur upon a papule or independently of one. The lesions are generally isolated; sometimes they may touch at their edges. They occur upon the buttocks, or on the border of the fold of skin above the buttocks, upon the inner side of the thighs, or upon the posterior surface of the calf; more rarely upon the posterior part of the scrotum, or the external surface of the labia majora, and still more rarely in the neighborhood of the anus. They may appear elsewhere, but exceptionally. Another characteristic is that this eruption spares the natural folds of skin. This eruption has been described as a syphilide, but in reality it is not. It may appear in syphilitic children, but it is only a special form of simple erythema. It occurs from the fourth to the sixth month of a child's life. The diagnosis is to be made by the absence of all other signs of syphilis, by the peculiar localization, by the presence of vesicles, by the rapid evolution of the eruption, and by its cure by simple measures. Syphilis occupies the anal region, runs a slower course, and yields only to specific treatment. Dry onychia is not a positive sign of syphilis. It is due to a disturbance of the nutrition of the child, which syphilis may cause, but not necessarily. Ulcerating paronychia may occur independently of syphilis, and is therefore not to be regarded as a sign of syphilis. Alopecia, when occurring in the form of bands and upon the anterior and lateral portions of the head, is diagnostic of syphilis to a certain extent. Adenopathies are of no value as a sign of infantile syphilis. They are rarely met with, and point rather toward tuberculosis than syphilis. Lesions of the lips, mouth, and pharynx are important. Fissures of the lips are most frequently met with. They may be median, and then usually of the upper lip, not involving the skin, but going deep down to the chorion of the mucous membrane. Unless they are very superficial, they are pretty sure signs of syphilis, and heal slowly under a greenish crust. Median fissures may also exist at the same time or alone, and are of less value than those of the upper lip in diagnosis. Scattered fissures—that is, a number upon the lips—constitute positive evidence of syphilis. Commissural fissures involve both the skin and mucous membrane, and are often deep, long, and covered with crusts. These are often mucous patches, and are positive evidence, as are also erosions. Mucous patches of the mouth and pharynx are rare. They are of two varieties, one being simply a reddening of the pillars of the palate, and this is not positive evidence of syphilis. The other form is superficial ulceration, or simply erosions upon the lips, gums, and the free border of the palatine arch. They are not absolutely characteristic, but suspicious. Of the tongue we have mucous patches and a desquamative lesion. Mucous patches here are rare, and occur most often upon the dorsum of the organ near its point, are seldom more than two in number, and resemble those of acquired syphilis. The desquamative lesion of the tongue is not a sign of syphilis, though it has usually been considered as such. It was found only seven times in one hundred and fifty nurslings. Coryza is one of the most constant and earliest symptoms of hereditary syphilis. The mucous membrane is attacked usually alone, the bones are rarely involved. The depression of the bridge of the nose can hardly be regarded as a sign of syphilis in infants, in whom the nose normally has a depressed bridge. A more frequent phenomenon is a sort of narrowing of the anterior nasal orifice, the skin seeming stretched and drawn in. This occurs after the coryza has lasted some time. The voice and cough are usually altered, being harsh, which depends upon a simple tumefaction of the larynx. More rarely we may find ulcerations of the larynx. The alterations of the organs of sense are so rare as to be of no value in precocious congenital syphilis. Interstitial keratitis is very exceptional before the

age of two years. Iritis, chorioiditis, and retinitis are not rare, but are so hard to diagnosticate, for one not specially skilled in eye diseases, as to be of little use for diagnostic purposes. Suppurative otitis media is quite common, with perforation of the drum. It is characterized by sudden appearance without any pain. Sudden deafness without antecedent otitis is a positive symptom. Lesions of the viscera are usually not to be determined except post mortem. They exist, but, unless accompanied with some more positive evidence of the disease, are of small diagnostic value. Enlargement of the spleen and of the testicle are the most diagnostic lesions. There are no positive signs from the central nervous system. The teeth are very rarely affected in early congenital syphilis. They are often retarded in their growth. The bones are often affected, most commonly the humerus, femur, and tibia; then the ulna, radius, fibula, ribs, and lastly the clavicle, the metatarsal and metacarpal bones, and the phalanges. The alteration is most often characterized by a more or less extensive thickening, but sometimes it is difficult to recognize it. A solution of continuity may take place near the epiphyses, but it is rarely complete. The skin over the diseased bone may remain unaltered or become necrosed. Ulceration of the skin is most often seen in connection with dactylitis. The bones of the skull may be affected, giving rise to craniotabes or osteophytes. The general appearance of the child should always be noted. It may seem well nourished or greatly debilitated. We may find well-marked cutaneous or other signs of syphilis on a well-nourished new-born child. The debilitated appearance is due to profound lesions and alterations of the blood. But, unless the disease is successfully treated, debility will sooner or later set in in all cases. In all there will be a marked pallor of special tone most evident upon the forehead and chin. As a rule, when a well-nourished infant suddenly begins to grow pale and flabby without any error in feeding or hygiene, we may suspect syphilis or tuberculosis, sometimes it is hard to say which. [This very interesting and important paper is so long as to be the despair of the abstracter. We have endeavored to select some of the leading points, and now commend its perusal in its original form to all who are specially interested in the subject.]

Extra-genital Syphilitic Infection.—In the course of nine years Pospelov, of Moscow ("Arch. f. Dermat. u. Syph.," 1889, Heft 1 and 2), met with one hundred and ninety-eight cases of extra-genital initial lesions, distributed as follows: Lips (20 men and 29 women), 49 cases; gums (1 man), 1 case; tongue (1 man and 2 women), 3 cases; throat (14 men and 32 women), 46 cases; breasts (69 women), 69 cases; chin (1 woman), 1 case; eyelids (3 men), 3 cases; nose (1 man), 1 case; trunk (10 men), 10 cases; anus (5 women), 5 cases; arms (3 men and 3 women), 6 cases; legs (4 women), 4 cases.

These initial lesions presented certain peculiarities that make them worthy of special remark for diagnostic purposes.

1. *Initial Lesions of the Mouth.* *a. Of the Lips.*—Most of them were covered with greenish-brown, more or less thick crusts composed chiefly of the secretion of the lesion itself. Sometimes the crusts may be easily removed, and sometimes they adhere quite closely. When removed they leave exposed either an erosion of little if any hardness, or an ulceration of cartilaginous consistence. When the lesion involves both the skin and mucous membrane it is raised above the level of the latter and resembles a hypertrophic secondary papule. Sometimes when the center of the papule has broken down it presents the appearance of *ulcus cupuliforme*. There was nearly always a firm œdema about the sclerosis, which is a diagnostic mark from secondary papules. The lips were nearly equally affected (twenty-three upper, twenty lower). Usually but one lesion was present; only three times was it multiple. The size of the sclerosis varied greatly; the form was usually round or oval, sometimes extended across the lip, sometimes of zigzag contour. Induration was usually marked; secretion was scanty; pain was usually experienced on pressure and on motion of the lip. The submaxillary glands were usually the ones first affected, and in rare cases they became enormously enlarged, even so much so as to change into abscesses. The first suspicious sign of a lip chancre is the failure of a fissure of the lip to heal. The second symptom is the formation of an increasing crust similar to what is seen in *ecthyma*. The third symptom is the enlargement of the submaxillary glands, most marked on the side of the chancre. The fourth symptom is induration and œdema, sometimes cartilaginous in hardness.

Treatment: Application of an ointment of white precipitate (gr. 3 to 6), and carbolic acid (gr. 10 to 15) to the ounce of lard. On the mucous membrane the papule was touched with nitrate of silver. Absorption of the infiltrate was hastened by the use of mercurial plaster. General mercurial treatment was used at the same time.

b. Of the Gums.—Only one case. Location, left upper side. A hard, slightly raised, bright-red band, with left-sided swelling of submaxillary glands. Probably derived from the use of a clarinet.

c. Of the Tongue.—Three cases. Ulcer round, sharply defined, fleshy-red color, and raised and hard. Adenitis, cervical and submaxillary.

d. Of the Throat.—To this the attention of the patient is first attracted by a certain difficulty or even pain in swallowing. The pain is located mostly in the tonsils and increases by pressure. It antedates the first eruption on the skin by from two to five weeks. Then the submaxillary and cervical glands become swollen, especially the former, and that more pronounced on the side of the chancre. The third symptom is an intense redness of the pharynx, which may be limited or diffused, and in unilateral infection is unilateral. The color may be brown-red, dark cherry-red, or even dark-violet. The fourth symptom is enlargement of the tonsils, with hardness, pain on pressure, and redness. To this redness and swelling of the tonsils erosions may be joined, which at times extend upon the adjacent parts of the pharynx, and the whole becomes covered with an ash-colored deposit, a sort of false membrane. The last symptom is the ulcer itself. This presents irregular, gnawed-out edges, which are seldom undermined. Around the ulcer is a sharply defined, variously shaded redness. The edges of the ulcer feel much harder than the floor. The latter is superficial when the pharynx is involved; a crater is formed and covered with a dirty-brown or grayish deposit when the tonsils are attacked. There was almost always induration. When the sclerosis was located upon the palatal arch or roof of the palate, it became markedly pale by lifting the roof or by pressure with the sound, like the whiteness produced by rolling back the prepuce when the chancre is located in that region. Most chancres of the throat were located on the tonsils, and in nine cases both tonsils were affected.

2. *Initial Lesions of the Mamme in Women.*—These were about two thirds of all the cases of extra-genital chancre, and arose in most cases from suckling infected children. The majority of the patients were wet-nurses in private families. Thirteen were mothers infected by their own children, and in them the syphilis was always more recent than in the child. Some were infected through their own children after birth, but it is not stated that all were. Most all the initial lesions of the breast were multiple, either upon the same breast or upon both. One case is reported of five lesions on one breast and a sixth on the other. The nipple was the part most often infected. The size of the sclerosis varied from that of a lentil up to three inches in diameter. In form they were sometimes linear, sometimes sickle-shaped along one side of the nipple and sometimes completely encircling the nipple, and sometimes of various configuration. In appearance they varied as chancres will. When the nipple was affected it was redder than the one of the other side, sometimes dark-red, enlarged, hardened, and at times flattened. Mastitis, simple or suppurative, was met with, also phlegmonous inflammation of the breast. The chancre ended by cicatrization, and at times by a hyperæmic cicatrix. The submaxillary glands of the same side were swollen and hard, and of both sides if both breasts were affected. If one side was infected before the other, on that side the swelling was most marked. In a few cases there was swelling of the glands over the pectoralis major muscle. The diagnosis of these chancres was usually easy. An important diagnostic sign of syphilitic infection of the breasts, when the chancre has healed and there are none of the usual symptoms to point to syphilis, is a flattening of the enlarged nipple and an asymmetrical leaning of it to one side. This is of importance in choosing a wet-nurse, and is best observed by looking at the breasts from behind the patient. It is not a positive sign, as other diseases of the nipple may give rise to it. *Leucoderma colli* is another important sign of syphilis in women, and is met with after infection of the breasts.

3. *Initial Lesions of the Face.*—In chancre of the eyelid the preauricular and submaxillary glands of the same side were enlarged. In

chancre of the nose the submaxillary glands were enlarged. In chancre of the chin the submental and submaxillary glands were enlarged.

4. *Initial Lesion of the Upper Extremity.*—In chancre of the arm both the axillary and elbow glands were affected. In four cases of chancre of the finger the axillary glands were enlarged in three, the epitrochlear glands in two, and the ulnar glands in one.

5. *Initial Lesion of the Lower Extremities and Trunk.*—These were located on the inner side of the thigh, on the nates, about the anus, on the pubes, on the lower part of the abdomen, and on the scrotum. The possibility of infection of the buttocks from privy-seats is allowed. Extra-genital chancre was found to be much more common in women than in men—nearly three times as frequent. The most frequent location of extra-genital chancre is the mouth. The next, in women, is the breast.

Miscellany.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending August 9th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicellæ.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheritis.	Measles.	Whooping-cough.
New York, N. Y.	Aug. 3.	1,575,791	850					13	2	22	1	14	
Philadelphia, Pa.	Aug. 3.	1,040,245	442					17	2	22	4	5	
Brooklyn, N. Y.	Aug. 3.	834,607	399					5	2	15	2	8	
Baltimore, Md.	Aug. 3.	500,343	203					3	1			1	
San Francisco, Cal.	July 26.	350,000	84					1	1				
Cincinnati, Ohio	Aug. 3.	325,000	98					4		6	4		
New Orleans, La.	July 27.	254,000	137					1		2	2		
Cleveland, Ohio	June 29.	235,000	60					2	1	5			
Cleveland, Ohio	July 6.	235,000	68					2	1	5			
Pittsburgh, Pa.	Aug. 5.	230,000	103					14	3	2	2		
Detroit, Mich.	July 27.	230,000	83										
Louisville, Ky.	Aug. 3.	227,000	54					3					
Washington, D. C.	Aug. 3.	225,000	112					2	3			2	
Minneapolis, Minn.	Aug. 3.	200,000	34					1	3				
Kansas City, Mo.	July 27.	180,000	40					1					
Rochester, N. Y.	Aug. 3.	130,000	75					3		1			
Providence, R. I.	Aug. 3.	127,000	74							2	1	5	
Denver, Col.	Aug. 2.	100,000	42					1					
Richmond, Va.	July 27.	100,000	45					2					
Toledo, Ohio	Aug. 2.	89,000	26					1	1			1	
Fall River, Mass.	Aug. 3.	69,000	46					2	1				
Nashville, Tenn.	Aug. 3.	65,153	27								1		
Charleston, S. C.	Aug. 3.	60,145	58					1					
Lynn, Mass.	Aug. 3.	50,000	22							1			
Portland, Me.	Aug. 3.	42,000	17					1					
Galveston, Texas	July 26.	40,000	12									1	
San Diego, Cal.	July 27.	32,000	3										
Binghamton, N. Y.	Aug. 3.	30,000	8					1					
Altoona, Pa.	July 27.	30,000	10										
Auburn, N. Y.	Aug. 3.	26,000	19					1		3			
Haverhill, Mass.	Aug. 3.	25,000	8					1					
Newport, R. I.	July 25.	22,000	2										
Newport, R. I.	Aug. 1.	22,000	5										
Rock Island, Ill.	Aug. 4.	16,000	6										
Keokuk, Iowa	Aug. 3.	16,000	5										
Pensacola, Fla.	July 27.	15,000	10					2				2	
Pensacola, Fla.	Aug. 3.	15,000	7										

The Health of Michigan.—According to the State Board of Health's Report for the four weeks ending August 3, 1889, diphtheria was reported from twenty-six places, scarlet fever from thirty places, typhoid fever from eighteen places, and measles from thirteen places.

The U. S. Grant University is the title of an institution situated in Athens and Chattanooga, Tenn., formed by the consolidation of the Grant Memorial University and the Chattanooga University. The medical faculty is constituted as follows: Dr. E. A. Cobleigh, dean, medicine, clinical medicine, and dermatology; Dr. G. A. Baxter, surgery and clinical surgery; Dr. J. R. Rathmell, obstetrics, diseases of children, and clinical medicine; Dr. H. Crumley, anatomy; Dr. G. W. Drake, physiology and psychology; Dr. W. T. Hope, materia medica, therapeutics, and clinical medicine; Dr. L. Y. Green, gynecology; Dr.

F. T. Smith, ophthalmology; Dr. N. C. Steele, otology, rhinology, and laryngology; Dr. J. E. Reeves, pathology, histology, and microscopy; Dr. W. C. Townes, medical chemistry and toxicology; Dr. J. L. Gaston, minor and operative surgery and bandaging; Dr. E. M. Eaton, diseases of the mind and nervous system; Dr. T. C. V. Barkley, urinary and venereal diseases; Dr. E. B. Wise, diseases of the chest and physical diagnosis; Dr. D. E. Nelson, electro-therapeutics; Mr. Harry Wise, pharmacy; Dr. W. G. Bogart, diseases of women and clinical gynecology; and Dr. R. L. Vaught, demonstrator of anatomy. Chairs of sanitary science, dental medicine, and medical jurisprudence are to be established. The regular winter course opens at Chattanooga on the 7th of October.

The French Congress of Surgery will hold its fourth session in Paris from the 14th to the 20th of October, under the presidency of Baron Larrey. Among the subjects to be discussed are the following: "The Immediate and Remote Results of Operations for Localized Tuberculosis," "The Surgical Treatment of Peritonitis," and "The Treatment of Aneurysms of the Limbs." Business communications should be addressed to M. F. Alean, 108, boulevard Saint-Germain, Paris; those on scientific matters may be addressed to Dr. S. Pozzi, secretary general, 10, place Vendôme, Paris.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE "PERFECTED EVACUATOR."

By FESSENDEN N. OTIS, M. D.,

CLINICAL PROFESSOR OF GENITO-URINARY DISEASES IN THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK; CONSULTING SURGEON TO CHARITY HOSPITAL, TO NEW YORK SKIN AND CANCER HOSPITAL, TO ST. ELIZABETH'S HOSPITAL, TO THE MANHATTAN EYE AND EAR HOSPITAL, ETC.

THE credit of conceiving and carrying to ultimate success the operation of removing stone from the bladder by lithotripsy at a single sitting is indisputably due to Professor Henry J. Bigelow, of Boston.

The method of crushing the stone has not materially changed from that pursued in former times, although we are indebted also to Dr. Bigelow for more powerful lithotrites. These at once became a necessity when attacking the large and hard stones, which the field of his brilliant operation quickly embraced. With the heavier instruments now available, it is rare indeed to find a stone which, in skilled hands, is beyond their compass. After the ability to use large evacuating tubes (from 25 mm. to 30 mm. in circumference, and even larger) was demonstrated, the evacuation of the *débris* seemed easy of accomplishment. The first instrument (a modification of Clover's) devised by Professor Bigelow answered the purpose admirably in the main, but was soon found to permit a return to the bladder of a portion of the *débris* after it had been deposited in the receiver, a fault which, however, did not prevent the accomplishment of many notable successes by this method; but Professor Bigelow at once began a series of elaborate and expensive experiments to remove the difficulty. Sir Henry Thompson, of London, who soon adopted Professor Bigelow's operation and contrived instruments of his own for its accomplishment, found the same difficulty to contend with. A sharp rivalry between these distinguished surgeons—to construct an evacuator which should act by the most direct and shortest route, and yet perfectly prevent the return of *débris* to the bladder—began in 1879, and for the several succeeding years furnished to the journals (chiefly the London "Lancet") many interesting illustrations and much animated discussion. After various modifications and expedients had been adopted and discarded during a period of several years, Professor Bigelow, in 1883, presented the instrument which has remained from that time up to the present (1889) without modification.

In presenting this improved instrument to the profession, in the London "Lancet," January 6, 1883, Professor Bigelow says:

"However otherwise arranged, a satisfactory aspirator should have some device near the catheter to act as a trap for *débris* and secure every fragment that has passed it. The chief difference among evacuators now is in the certainty with which they retain the fragments they have aspirated. Any instrument will draw out the fragments, but few hold them securely, for the *débris* does not always fall into the glass receiver, nor does it always remain in it. On the contrary, it is easily carried back into the bladder. This de-

fect in the action of the evacuator has received little attention from surgeons, although it is the only point connected with the instrument which offers any difficulty whatever. Until recently it has been remedied only by sacrificing simplicity in the apparatus."

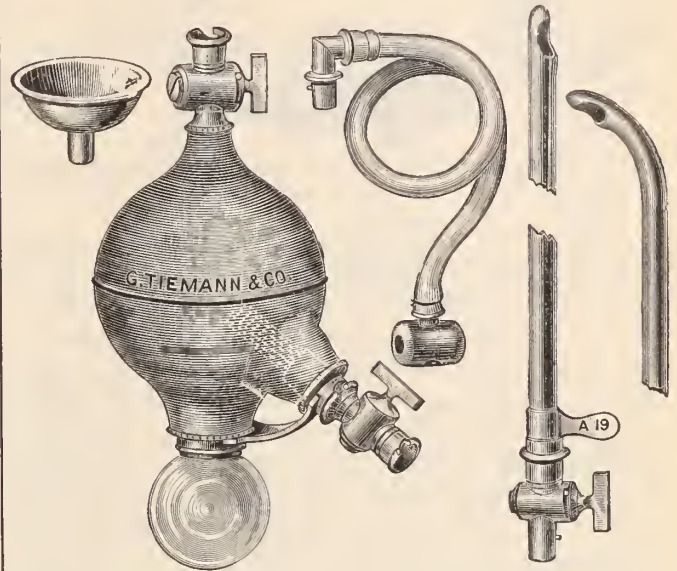


FIG. 1.—Professor Bigelow's latest evacuator. Weighs twenty-four ounces; filled, weighs thirty-four and a half ounces; holds ten and a half ounces.

In this latest instrument of Professor Bigelow the route to the bladder has been changed to correspond with that of Sir Henry Thompson, in which the evacuating tube was attached directly to the evacuator, without the intervention of tubing, as in Professor Bigelow's previous instruments, thus apparently giving both surgeons the advantage of the same and the shortest route to the bladder. In place of various contrivances—ball, valves, traps, and strainer of previous modifications—a perforated tube was inserted into the lower side of the rubber bulb and continuous with a stop-cock which connected directly with the evacuating catheter. This perforated tube or strainer was alleged to prevent effectually the return of *débris* into the bladder, and, in operation, it was proved to do so; but the strainer, while working perfectly in experiments with crushed coal or coral, when in practical use quickly became so clogged with mucus and coagulated blood that the frequent cleansing of the strainer during operation became necessary. This fact led Sir Henry Thompson to say (London "Lancet," 1883) that "all the perforated tubes and strainers get blocked with *débris* (as I found long since) in the human bladder, not with coal in water, so as to be practically useless there." As Professor Bigelow had, in the "Lancet" of January 6, 1883, presented a large-sized woodcut illustrative of the absolute inability of Sir Henry's then latest instrument to prevent the return of *débris* to the bladder, with ample descriptive text, it might be suggested that his opinions of perforated tubes and strainers had been somewhat modified by personal feeling. The accompanying accurate copy of a photograph of the perforated tube or strainer of Bigelow's improved evacuator, taken at the close of an operation at St. Luke's Hospital not long

since, will, however, go far to justify Sir Henry's statement.

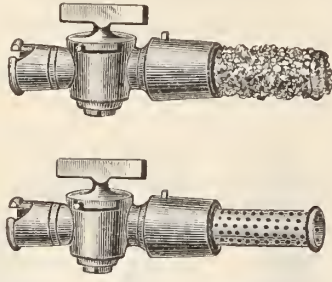


FIG. 2.—Clogging of the tube. The upper figure shows the obstructed tube; the lower one, the same after cleansing.

In cases free from mucus and pus and perfectly free from any admixture of blood with the water during operation, there will not be any noteworthy difficulty; but if there is a trace of blood present in the progress of the procedure the perforated tube will inevitably and promptly become blocked, as in the photographic reproduction above presented. The instrument was a good one for practical purposes before the addition of the perforated tube; but it was open to the objection, as shown, that *débris* was likely to be left in the bladder after operations with it. Save under very favorable conditions or by the frequent cleansing during operation, the objection evidently remains.

Sir Henry Thompson's experiments and modifications finally culminated in an evacuator which, equally in action, prevented the return of *débris*, without being open to the objections made against Professor Bigelow's instrument. This improved aspirator was presented in the London "Lancet" of April 12, 1884.

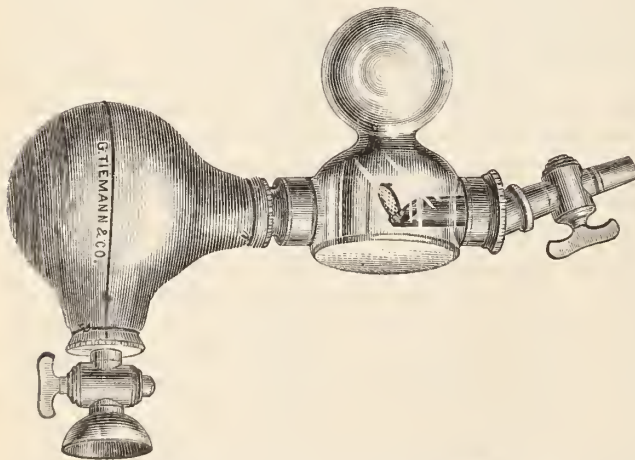


FIG. 3.—Sir Henry Thompson's instrument (improved, 1889).* Holds 12½ oz.; weighs 27½ oz. (Troy) empty; 40 oz. filled.

"The improvement consists in a light, loosely hanging valve of fine wire attached by a simple hinge to the end of the evacuating tube, which terminates within the glass trap of the instrument. When pressure is made on the India-rubber globe, and the current flows by the evacuating cath-

ter into the bladder, this light valve is driven close to the aperture and no *débris* can leave the glass trap. When the pressure is removed and the current returns from the bladder, the valve floats widely open and permits the *débris* to enter unchecked. The wire valve is circular in form, and its border, being flat and thin and about the tenth of an inch wide, is delicately sensitive to the movements of the current, and responds to the slightest impulse of the hand on the India-rubber globe." "But," Sir Henry further remarks, "I am quite satisfied that, with my last published aspirator (the one so elaborately criticised by Professor Bigelow in the 'Lancet' of January 6, 1883), as well as with the form now described, no *débris* returns to the bladder if the instrument is properly used, when, of course, the valve is unnecessary. Few persons are aware that very slight but quickly made pressure on the globe, sufficing to transmit only six or eight drachms of fluid into the bladder, generally removes more *débris* than a powerful impulse which transmits, at one act, all the fluid contents of the globe, or nearly so. When employed in the manner last named the valve becomes useful, and only then is it required."

At the commencement of the evacuator contest I was using very satisfactorily the original Bigelow instrument, and was, at the time of the notable discussion in the London International Congress of 1881, under the impression that it was the best then in use. During that discussion Sir Henry Thompson accorded to me a fair share of the honor of contributing something toward the ultimate success of the operation of removal of vesical calculi at a single sitting. My distinguished countryman, Professor Bigelow, however, neglected to give me the credit of the previous discovery of the normal urethral caliber, through which alone the rapid evacuation became possible. Not desiring to assert my claim as a grievance, I determined, if possible, to invent another evacuator and, in describing it, to write the history of evacuators in general; in this I proposed, while according honor where honor was due, to take what I believed to be my legitimate place in the preliminary history of litholapaxy.

Two years after—viz., in November, 1883—I presented and demonstrated my first evacuator at a meeting of the New York Academy of Medicine, and read a paper in which "the removal of *débris* from the bladder after lithotripsy" * was fully considered, with representations of previous instruments which had been in use for that purpose, adding those of my own, and in which, while it was distinctly shown that Professor Bigelow did not discover the increased capacity of the urethra, which alone made his operation possible, and also that he did not discover the tolerance of the bladder to prolonged instrumental interference; yet, as I there maintained, "he did much more—he utilized the knowledge which he, in common with other surgeons, possessed. He had the inspiration to conceive of its value as a factor in a great life-saving operation. He seized my dem-

* This cut, which shows the swinging trap of Sir Henry Thompson's instrument, is taken from the latest modification (1889), wherein the general form of the instrument approaches more nearly to that of the author (see Fig. 1).

* Subsequently published in the "Medical Record," and in a reprint (1883) entitled "The Simplified Evacuator for the Removal of Débris from the Bladder, after Lithotripsy." New York: G. P. Putnam's Sons.

onstrator of an average urethral caliber of 32 mm. in circumference. He joined it with his knowledge of the toleration of the bladder to legitimate surgical procedures, and litholapaxy was born. He had the courage, the surgical knowledge, the skill, the inventive mechanical genius, and the perseverance to carry it, *vi et armis*, to a successful maturity, thus finally achieving one of the most brilliant surgical triumphs of modern times."

My own instrument was constructed on an entirely different plan from those of both Professor Bigelow and Sir Henry Thompson. Having appreciated the difficulties of overcoming the alleged faults of both, I endeavored to accomplish evacuation without return of the *débris*, independently of traps, valves, or strainers. This was effected by a simple breaking of the currents to and from the bladder, so that the *débris* should be released *in transitu* and drop down into a receiver arranged to be a perfectly dead point.

In its practical working it was found fully equal in its evacuating power to the improved instrument of Bigelow, with the advantage that, without trap or strainer, no *débris* was returned to the bladder. It was found, however, that, under circumstances where, during the operation, it became desirable to introduce an additional amount of water into the bladder, this could only be effected with considerable inconvenience—much greater than in Bigelow's or Thompson's instruments. In 1885, therefore, a tap and stop-cock were added at the end of the rubber bulb, as shown in Fig. 4, so that, when it was found desirable to introduce addi-

years. The only real embarrassment which was found in the use of this evacuator was from the weight and inconvenience of manipulation of the two stop-cocks, which objection obtained equally in the instruments of Sir Henry

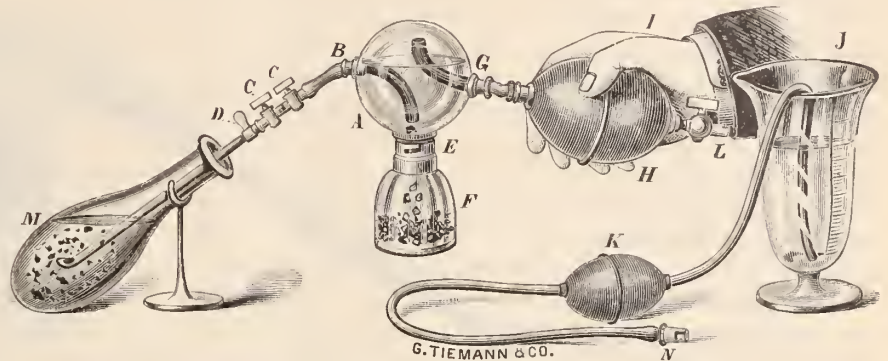


FIG. 5.—The Otis evacuator. With Davidson syringe and graduate.

Thompson and Professor Bigelow. At the suggestion of my son, Dr. William K. Otis, who had noticed the greater lightness of the evacuator of Dr. Ultzmann, of Vienna, I substituted hard-rubber fittings similar to his, and, in the course of experimentation which this change suggested, removal of all intermediate connections between the glass reservoir, the rubber bulb, and the evacuating catheter, was found practicable, decreasing the weight and adding to the ease in handling the instrument. It was then discovered also that a stop-cock was not necessary to prevent the water from flowing from the evacuator, this being effected by atmospheric pressure alone in any position which the handling of the instrument required, and that only when laying it down was any water liable to run out. For use in this event, a simple plug of hard rubber, attached by a string, was alone necessary.

The successful elimination of one stop-cock, previously supposed to be the most important and still absolutely essential in the instruments of both Bigelow and Thompson, directed attention to the possibility of getting rid of the remaining stop-cock on the evacuating tube, which seemed desirable in order to prevent loss of water while attaching the evacuator to it after the crushing. It was ascertained in actual practice that, by changing the routine of operation a little, this stop-cock was also wholly unnecessary. These important changes decreased the weight

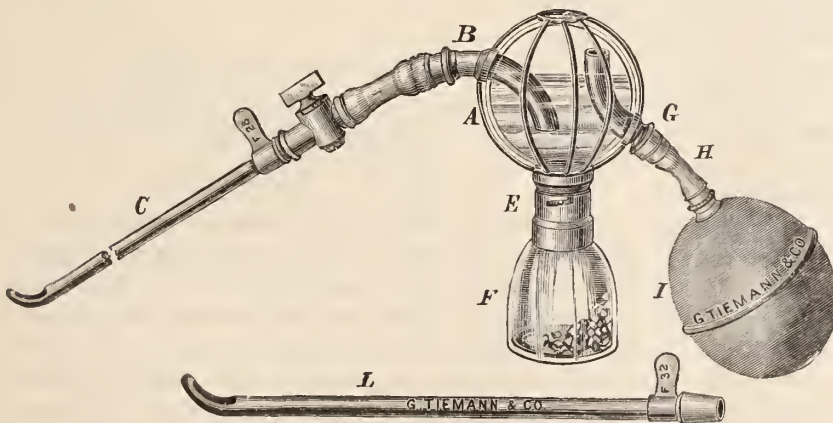


FIG. 4.—The author's first evacuator, 1883.

tional water into the bladder, this was done with great ease by attaching the discharge-pipe of the Davidson syringe to a stop-cock (at L), while the supply end is immersed in a vessel (preferably a large glass graduate) filled with water at a proper temperature. The easy attachment and detachment of the Davidson syringe allow any desired amount of fluid to be introduced into the bladder without delay or inconvenience. With this addition the instrument did most satisfactory service in my hands during the following two

to such an extent that, when filled, my perfected evacuator weighed six ounces less than Professor Bigelow's empty. Now, instead of attaching the evacuator to the evacuating tube immediately upon its introduction into the bladder after crushing, the fluid was allowed to flow out, carrying with it all the fragments that could thus be washed out; then, deliberately attaching the evacuator to the tube, the desired amount of water for working the instrument easily was introduced by means of the Davidson syringe, which

was connected with the rubber bulb. The syringe was then attached, and the evacuation deliberately proceeded with. It was not found necessary to press the end of the evacuating tube to the extent of depressing the bladder floor, so as to make the portion with which it is in contact the lowest point, as advised in using the evacuator of Professor Bigelow; but the current was sufficiently strong to draw out the *débris*, if the tube was simply well introduced into the bladder cavity.

Among the tests which were originally made to prove that the receiver was a perfectly dead point, and that fragments once deposited in it were thus entirely out of the influence of the currents passing to and fro during evacuation, was that of filling my evacuator completely as for ordinary use, then detaching the reservoir, emptying it, refilling it with glycerin, and then reconnecting it with the reservoir. A small quantity of crushed coral (which more nearly resembles vesical calculus than coal) was introduced into an ordinary soda-water bottle, and this half filled with water, to which a little ink had been added. On working the bulb, the fluid thus colored was seen to pass back and forth through the reservoir, but not in the least mixing with the glycerin, while the coral was drawn out of the bladder in the inky current, and, receiving its impulse and direction from the discharge-pipe, was disengaged from the colored medium, and, dropping down through the clear glycerin, was deposited at the bottom of the receiver. This experiment, which proved in a striking manner the perfect retention of the *débris* in the receiver during evacuation, was subsequently found to work admirably in actual practice; and in all operations, for the last two years, where blood was present in sufficient quantity to obscure the fluid, I have used the glycerin with great satisfaction. Without it, it will occasionally be difficult, and sometimes impossible, to tell whether the evacuation of the *débris* is proceeding satisfactorily without disengaging and emptying the receiver.

The changes which have been made in the old instrument are as follows:

1. Removal of all stop-cocks.
2. Removal of tubing between bulb and globe and between globe and evacuating tube, thus making the instrument more compact, and the distance from the bladder to the receiver the shortest possible.
3. Introduction of hard rubber in place of metal wherever possible, giving the utmost lightness.
4. Making the tube apertures in the globe oval instead of round (Dr. W. K. Otis's suggestion), and thus giving the greatest security against their getting loose and leaking.
5. Increasing caliber of evacuating tube where it enters the globe, thus securing a greater rapidity in delivery.

It is now maintained that this latest evacuator presents

the following advantages over all other instruments now in use:

1. Perfect trapping of all fragments without the use of any form of valves, perforated tubes, or strainers.

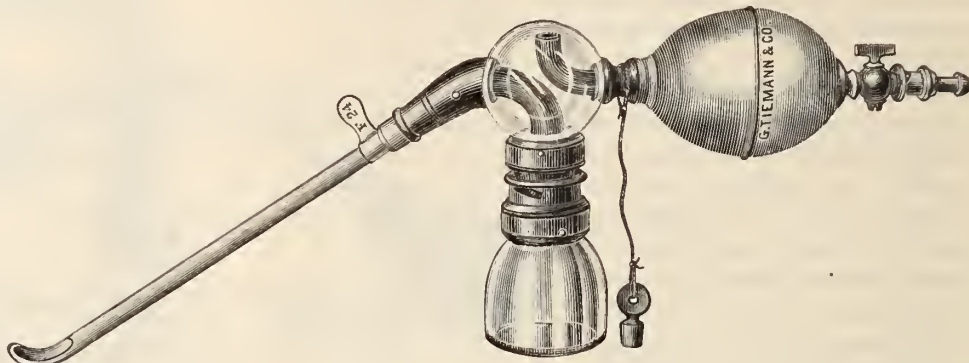


Fig. 6.—The perfected Otis evacuator. Holds eight ounces; weighs ten ounces empty; eighteen ounces filled.

2. Shortest possible route of fragments from the bladder to the receiver.
3. Absence of all stop-cocks between the bladder and receiver.
4. Ease of filling and perfect control of the amount of water in bladder during evacuation.
5. Lightness, compactness, power, and facility of manipulation.
6. In that the fragments being visible from the moment of leaving the tube until removed from receiver, it can be seen that they do not return to the bladder.

5 WEST FIFTIETH STREET, NEW YORK.

NOTE.—The original Otis evacuator was manufactured by Messrs. George Tiemann & Co., surgical instrument makers of New York, who, with much pains and skill, have aided me in the succeeding changes necessary to bring the instrument finally to its present state of perfection.

F. N. O.

ANGULAR CURVATURE.

INTERDEPENDENCE OF STRUCTURE AND FUNCTION OF THE SPINAL COLUMN.

By GEORGE H. TAYLOR, M. D.

VERTEBRAL disease, without question, has its source in conditions unfavorable to a sufficiently vigorous vitality. It follows that whatever is adapted to correct these conditions by substituting the more favorable conditions for the less is remedial. True remedies necessarily bear a philosophical relation to the sources of the malady. However urgent and aggressive symptoms may be, if they are effects of a hidden cause, remedies which fail to include these causes are impotent. The stream flows on, while the sources continue the supply. It hence too often happens in vertebral cases that while the physician palliates the pain, fosters the hopes, and opposes the exterior changes of contour of the spine, he has the mortification of noting the almost imperceptible diminution of strength of his patient, and of feeling a deepening consciousness of the inevitable doom.

The medical error is that of blending causes and effects in estimating the nature of the affection, and of practically

restricting his efforts to the latter. Perhaps also he estimates too highly the remedies at his command applicable to the sources of the disease. Vertebral disease exists potentially in its sources rather than in the register of its progress afforded by the shape of the column. But the sources are *functional acts*, and such acts are the only conceivable way in which structure can be either built or repaired.

In vital objects, therefore, structure is indissolubly associated with function, whether health or disease be the product. These two conditions are not opposite or antagonistic to each other, as the sufferer is apt to think, but degrees of the same thing—stages arrived at by function, ranging from perfection down through all forms of imperfection. Depressed and perverted function is disease, or at least its commencement, whatever its mode of expression may be. Such depression portends a corresponding recognizable condition of the structures to which the function belongs.

These statements express a general law of the vital organism. The law is a necessity arising from the nature of vital processes, the unceasing mutation of the *ingredients* serving vital uses. The word *nutrition* includes the sum of these changes of substance in the vital organism. Nutrition implies of necessity the two mutually dependent acts of supply of material to vital structures and expenditure or dismissal of the same. All remedies, therefore, from equal necessity, take effect in one or both departments of nutritive activity.

In all branches and departments of therapeutics the aim is the restoration of functional acts to a due degree of perfection. That such is the legitimate and, in fact, the only practicable way of building and repairing the organic structures is never doubted. Remedies are selected to aid and modify functional acts, not to obstruct, harass, or suspend them. Thus incited and guided, function approaches its normal degree and quality, and structural substance is re-enforced and solidified.

The reasonableness of these statements appears in bold relief when applied to different distinct functional parts of the organism. In disorders of the respiratory, the digestive, the circulatory, the pelvic, the nervous, and other parts of the body having plain functional duties, remedies are employed to assist the processes of which the respective organs are the seat. So far as structure is involved, its reparation is trusted to the consequences of improved and perfected function. The destinies of the two things are naturally and inseparably interlocked. These principles are obvious and probably trite, but are nevertheless invested with a world of meaning in their application to vertebral affections, their causes and consequences. The several tissues of the spinal column afford no exception to the principles above outlined, but, on the contrary, present unequivocal and abundant confirmation of them.

Reparation of diseased vertebræ is therefore to be rationally sought through a judicious adjustment of those activities which are *natural* to its tissues, and which in health maintain the normal state, to their impaired and weakened condition. Indeed, health is but a continuous

reparation; the same effect follows the same causes, adjusted in degree in case of feebleness and impairment.

It is unfortunate for the spinal sufferer and for the therapeutics of the spinal column that the correctness of the above-stated principles has hardly been tested, even for the purpose of refutation. The physiology of the column, its tissues and their functions, has been misunderstood and misinterpreted, and therapeutics has consequently been misdirected. The immediate purpose is to present the neglected elementary facts, which lead to a better selection and use of remedies for spinal affections.

The development of this purpose requires frequent reference to elemental facts in anatomy and physiology. It is important that the reader have an accurate picture in his mind of these facts, including the distinct separate portions of the spinal column, its tissues and muscles, and the purpose these serve in health. In the descriptions of those which follow, all details not useful for advancing the central purpose are omitted.

The spinal column is composed of several distinct anatomical parts, whose functions are associated. It consists of bones, cartilages, ligaments, tendons, canals, and interosseous spaces, filled with fluids. At each side of the column and closely associated with it are large and powerful masses of muscles. These muscles control the position, the shape, and the motions of the column. In doing this they determine the outflow and inflow of its nutritive fluids, and therefore, to a large extent, the conditions for its health. This will be better seen when each anatomical part is examined separately and its intrinsic needs are ascertained.

The *bones* are a series of superimposed blocks or segments, called *vertebræ*, extending from the head to the lowest bone or sacrum. The lower vertebræ are broad, adapted to sustain greater weight; the size gradually diminishes upward. Those opposite the chest articulate with the ribs; those of the neck are narrower in proportion to height. They have very similar external appearance, being broader at the articulating faces, somewhat rough exteriorly, thus increasing the surface for attachments of tendons and muscles which engage the column. All have posterior projections or *spinous processes*. These are long at the neck, the length diminishing with each vertebra downward.

A remarkable peculiarity of the vertebræ is their capacity for fluids. A dried vertebral bone is light compared with other bones, like cork compared with wood. The division of one of these bones shows an interior of spaces or cells, which communicate freely with each other. The divisions are formed of very thin plates or laminae of bone which intersect each other, giving an appearance resembling fine sponge. The exterior shell of bone is also very thin.

Although in the dry state the vertebral bones are inelastic, unresisting, and brittle, these qualities are reversed in the vital state and when saturated with moisture. They now have great strength united with elasticity. The thin bony exterior and the thin interior laminae are separately very yielding; united, they acquire resisting power without sacrificing the elasticity of the separate parts. The fluids which the interior cellular spaces contain contribute to both the resisting power and elasticity of the whole, for these fluids

are free to move through all the cells in consequence of their intercommunication. When, therefore, pressure is applied to any point of the exterior, the fluids recede to other parts, and at the same time mechanically diffuse the pressure throughout the interior laminae. The vertebral mass is therefore constructed with a view to elasticity as well as resistance.

The intervertebral cartilages appear to be nearly structureless and devoid of fluid spaces; their function would seem to be mainly that of elasticity. They are susceptible of slight extension by the removal of perpendicular pressure, while vertebrae appear to require a shifting of pressure from one to another part of the transverse diameter in order to develop the elastic property. The one tissue mitigates shocks from arrested motion, the other increases the extent of the lateral motions of the column. The elastic properties of the two classes of tissue supplement each other in the physiological rôle.

The ligaments and tendons which invest and unite the junctures of the vertebrae serve to increase the resisting power of the spinal column and to render it a mechanical unit. These tissues also aid in extending the action and power of the spinal muscles attached to the column.

Spinal Elasticity.—The spinal column divested of its muscles and separated from its natural connections would have very little sustaining or resisting power. It would easily yield or bend in obedience to gravitation or whatever force might bear upon it. The spinal column, in other words, is *flexible*, capable of bending in all directions; and it is also *elastic*—that is, possesses the power to return to the initial position.

The elasticity of the spine has been held to reside chiefly if not entirely in the intervertebral cartilages. The evidence is strong that a part of the columnar elasticity, probably a large part of it, in healthy animals and man, is an inherent property of the vertebrae; that it is an indispensable function of vertebrae; that this property may diminish with deterioration of health, and especially with diminished power of spinal muscles; and that it may return with improved health and restoration of the muscles which serve the elastic function. The evidences supporting the proposition that the vertebrae are elastic, a part of which have been mentioned and others to be introduced, are the following:

The structure of the vertebral bones eminently conduces to that function, while a structure resembling that of other bones would forbid it.

The unique combination of fluids with the structure, both uniting while dividing its minutest parts, conduces to the same end.

Cartilaginous elasticity alone is insufficient to account for the *degree* of flexion, and consequently the extent of the elasticity, constantly witnessed in animals and man in health. A part of it, therefore, devolves on other tissues of the column—the vertebrae.

The elasticity of vertebrae is strongly indicated, negatively, by pathology; for whenever they are for a season forcibly deprived of the exercise, the elastic quality, they approach and finally assume a morbid state.

Therapeutics even more strongly indicates, positively,

that vertebrae have elastic properties; for, when suffering unmistakable hyperæmia, the exercise of the elastic quality of the spine in a proper way is the most certain and powerful remedy for the removal of this condition and its consequences. This shows that motions which involve elasticity are a natural function and constant in health. The proofs of the last two statements will appear in the proper place.

The Spinal Muscles.—The large, longitudinal masses of flesh which give the rounded form to the back are the spinal muscles and their covering of skin. These muscles fill the V-shaped space or groove each side of the spinous processes, and the outward convexity or bend of the ribs. The visible exterior fails to indicate their thickness; but this is approximately measured by the length of the spinous processes.

The spinal muscles are related to the column in two ways, which together determine the functions and health of the column. A thorough understanding of these relations is imperatively necessary for those whose purpose it is to rectify spinal faults and restore columnar tissues. One of the functions of these muscles is universally understood. It is that of causing the column to bend at will in any chosen direction, and of sustaining it in any chosen position. This purpose is effected by such graduated opposition of muscular action as shall secure the desired result. The action is an interplay of mechanical counter-forces. Whether spinal flexion or a special fixed form of the column is produced, it is equally the result of the tension of some combination of spinal muscles.

It hence appears that flexibility and elasticity of the column impose on its muscles the necessity of *constant work* or function, except only when the body is in a lying position, for, even when apparently motionless, muscular tension is required to maintain the position, and this involves action of the constituent elements of muscular substance. This muscular activity naturally responds to the need of the column of a vigorous collateral circulation promoted by the action of spinal muscles. It also indicates the vast amount of *chemical* function assigned to the same muscles of direct and undoubted advantage to the fluids of the vertebrae.

The other form of relation of spinal muscles and the vertebral column is an extension of that above described. The action of spinal muscles is the potential and effective *instrumentality of columnar nutrition*. Through their agency the physiological state is maintained. The absence of this agency is provocative of disease, liable to become localized in the column.

The details of the process whereby such important results as the nutrition of the column are secured become easily intelligible. In flexion or bending of the column its tissues become compressed at the concave side, and by equal necessity are drawn apart, stretched, or distended at the opposite or convex side. These are inevitable physical consequences of the physical cause operating—they are inevitable and constant. We will next see what occurs in the interior.

A certain portion of the fluids contained by the tissues of the column is unconfined and free to obey motor im-

pulses. These fluids move forward when in the least degree urged, the motion being of course in the direction of least resistance. It follows that the fluids of the *compressed* side of the column are *diminished*; those of the *stretched* side, at the same sectional area, are *increased*; they become displaced from the compressed portions and admitted into the stretched region. It follows that the nutritive fluids contained by the interspaces of the vertebral tissues which have been subjected to this act of flexion have become renewed and refreshed.

The term "fluids" in this connection includes the two kinds of blood. It further includes all mobile matters borne from arterial sources into the region of mechanical change described, and all similar substances capable of emerging therefrom through venous channels. The term further includes such matters as are rendered fluid and mobile through the chemical changes superinduced by the oxygen introduced from arterial sources, in connection with the coincident motion which facilitates, even enforces, the oxidation of unstable organic matters. It therefore includes the *exclusion* from the columnar region of products of waste, surplus materials, matters whose prolonged retention would threaten the integrity of vital structures; for prolonged retention of unstable organic materials in the extensive spaces afforded by the vertebral cells and canals is a condition which, if not actual disease, is one particularly favorable to its development, and therefore to the degeneration of the columnar structures. The phrase "change of local fluids" is therefore fraught with profound *therapeutic* as well as physiological significance; it is just what is most earnestly sought by physicians through numberless other channels, yielding only insignificant and temporary effects.

Physiological statements replete with therapeutic interests like the foregoing will necessarily be received with caution, not to say distrust. Except by the few physicians who, under the writer's guidance, have had the temerity to verify these statements by practical and satisfactory tests, their import has been but poorly apprehended. It is therefore proper to multiply analogies, illustrations, and explanatory statements, the better to enable those who desire to push this class of inquiries to do so to the best advantage.

The inability of the spinal column to urge forward, through its own tissues, its sanguineous and other fluids is obvious from the nature of these tissues. Bones contain no muscular or other self-contractile tissue. Such fluids as enter find egress without assistance from the bones. Students of anatomy learn that on entering osseous formations the arterial branches for the supply of nutrition are divested of their muscular coats, and the onward flow is due to other causes. This fact indicates the necessity, and therefore a provision, for such outflow.

The columnar tissues are not alone in requiring muscular power from a distance to aid their sanguineous outflow or venous circulation. There are physiological parallels in many parts of the organism. The *head* is an instance in point. A portion of its venous blood is in large sinuses, and the venous walls in general have feeble if any control of their contents. The brain contains no muscles to indirectly

affect the venous flow. Its blood must remain indefinitely stationary but for exterior assistance. This is supplied in the pump-like action of the chest, which constantly diminishes the pressure in it, and therefore the desired outflow of the cerebral fluids.

The contents of the *pelvic* venous vessels are similarly circumstanced, and have the additional disadvantage of ascending in opposition to gravitation. Yet the same means as before mentioned is effective for the same end, so long as chest-motions operate in the pelvic direction. The therapeutic effects of *increasing* the action referred to, when the contents of the pelvis are in a pathological condition, proves incontestably the reality and the efficacy of the force described.

The functions of the spinal column require its tissues to be too dense for an effective penetration of the force which is sufficient for the return of the cerebral and pelvic venous blood and excess of fluids. Nature provides an additional and far more certain and effective means, of which the tissues of the column supply the mechanism while the neighboring muscles supply the force required. The working of the columnar mechanism may be further illustrated.

If a green twig, supple and full of sap, be cautiously and strongly bent, it is evident that the woolly fiber of the concave side is compressed, occupies less space; the longitudinal measurement is diminished. The interspaces between the fibers are made smaller and their fluid contents are necessarily in part displaced or *squeezed out*. This mechanical effect extends in diminishing degree to the center.

At the opposite or convex side of the same object a contrary condition of the structure simultaneously appears. The fibers are drawn apart, the dimensions of the interfibrous spaces are increased, and their capacity for fluids enlarged. The removal of pressure produces a condition of the interspaces known by the term *suction*, which is active and efficient in proportion to the rapidity of the motion. It is evident that in the green twig, or any object having similar physical peculiarities, the fluids would be driven from one side and become free to assume other relations, while the opposite side would at the same instant receive such other fluids as come within its sphere of attraction.

The physical changes to which the fluid portions or contents of the spinal column are subjected by its flexile motions are aptly shown in the mechanism and action of a common rubber syringe. The bulb is compressed and water issues from the pipe. The pressure being released, expansion causes inflow in exact measure to the outflow, its direction being controlled by valves.

The steam pump is a mechanism practically similar, and more completely typifies the action of the spinal column, inasmuch as its action is also double. The liquid urged from the *eduction* pipe by the movement of the piston corresponds to the similar consequence produced by flexion. The *induction*, at the other side of the same piston, simultaneously produced, corresponds to the admission of fresh arterial blood into the vertebral spaces by the same acts of flexion. In both cases the reversal of the motion exchanges the work of the two distinct parts, but continues the flow. In both cases, also, the fluids subjected to impulse have

been passed quite through the mechanism, and have emerged therefrom.

The nature of the columnar interspaces may obscure but can not hinder or delay the mechanical effect imputed to the flexile motions of the column. So long as these interspaces are *perious*, the application of force insures the passage of the animal fluids. The abundance of interstices, all pervaded by fluids, compensates for want of size of the channels. The transfer is physical in its nature and is irrespective of other considerations.

The act of transfer described of the columnar tissues is not an exceptional but an ordinary incident in physiology; a local manifestation of organic law; a step in the grand procession of matter in vital objects. Its analogue exists in every part of the organism. The vital cell exchanges its contents; the muscles change their shape; there is alternation—*rhythm*—of heart, chest, digestive organs, etc. In each case the tissues impel contents. The marked peculiarity of the column is its deficiency of motor energy, and its appropriation of that expended by neighboring muscles, for its special physiological needs.

The fluids supplied to the spinal column in the way described are those whose inflow is insured by arterial pressure, and are necessarily arterial. Those disengaged are venous, and, outside the area of compression, mingle with the venous currents. After the disengagement the columnal fluids are the common property of the vital system; they are subjected to the organized depurating processes of the vital mechanism—to the vital chemistry—and the fate of whatever is derived from the spine, healthy or morbid, is indistinguishable from that common to all parts. All now depends on the completeness attained by this general chemistry, by the further physical act of oxidation, and the working of the physiological mechanism which secures the necessary degree and rate of oxidation.

Practical Confirmation of the Preceding Statements.—

The practicing physician is usually pressed for time, and loses his disposition for physiological experimenting. He is content to pursue the therapeutic course commended by precedent, and he is but little influenced by unverified physiological statements. He requires practical satisfactory tests of the value of new and strange remedial methods. In the present instance such verification is not wanting. It is even unnecessary at present to cite the direct tests of the author and the physicians who have investigated therapeutic methods based on principles above explained. A more satisfactory evidence is that supplied from another but related branch of therapeutics—*viz.*, that of the *spinal cord*.

The anatomical position and the physiological relations of the spinal cord largely merge its interests with those of the column. The cord is nearly inclosed by the column, and they have similar sanguineous connections. The cord, like the column, contains no muscular or contractile element; can impart no motor impulses to its fluid contents. Especially it has no direct control of its products of expenditure and semi-expenditure.

Even more than the column, the cord is liable, in our civilization, to hyperæmia and its consequences. The cord is conceded to be the central source of sensory power. The

unbalanced exercise of the sensory and emotional faculties may give rise to an excess of arterial supply over the venous outflow from the same part. The vessels of the cord would then suffer from the deterioration within it of stagnant blood, affording symptoms more or less painful and often threatening the integrity of its tissues.

To remove spinal hyperæmia and the concrete and more or less fixed products of hyperæmia is, therefore, the recognized problem of the therapist. Whatever methods and details he pursues aside from temporary relief of pain, his radical design is to empty the cord of its superfluous fluids, and, if possible, to reduce local impediments to an emergent or fluid form. The present writer showed in the "New York Medical Journal," nearly twenty years ago, that *motor impulses*, however communicated, were capable of profound therapeutic effects. Stretching, by hanging and by horizontal tension, was a part of the processes by which impulses were communicated. These processes appeared to reach the *causative* factor. For the removal of hyperæmia and its consequences, under whatever name, is but a temporary advantage unless the physiological mechanism which returns the circulation from the cord and its precincts be also raised to the normal condition. The two objects are effected together by the alternation of pressure which is the natural and indispensable function of the column.

In the May 11th number of the "New York Medical Journal" Dr. William A. Hammond cites Dr. Motechowsky, of Odessa, as having discovered the same principle as that above described—*viz.*, that certain affections of the cord are relieved by alternations of the column. The word *stretching* is used as descriptive of the process, but continued tension is evidently not meant; only limited periods of suspension at judicious intervals. The process is called *stretching* the cord, but the present writer has found that no amount of tension that can be borne is capable of elongating the spine to a greater extent than occurs spontaneously, follows an hour's quiet sleep—*viz.*, from three eighths to half an inch. If the suspension be by the arms, the practice soon enables the subject to bear the application of a surprising amount of tensile force without in the least increasing the length of the spine.

It is evident that the tensile force applied in these and similar processes falls upon the tissues of the column and its muscles rather than the cord. It would also seem that some term indicating *alternations* of compression, or of the weight sustained by the tissues of the column which actually occurs, would be more appropriate than stretching.

Longitudinal tension of the spine, however produced, necessarily falls upon its *resisting* structures; its physiological as well as mechanical consequences therefore occur in these. It is the vertebrae, the tendons and ligaments, the cartilages, and the longitudinal muscles in which involuntary contraction is incited that are primarily affected. The profound effects secured for the cord are rational consequences of these and are easily understood. In the hanging process the muscular action produced co-operates with mechanical changes in the tissues of the column before described, and the result is powerful revulsion from the cord. Its pent-up fluids, surcharged with matters inimical to vital-

ity, are drained away, and arterial blood charged with renovating power is introduced. Another coincident should not escape notice. The amount of air contained by the lungs in the position described is increased to the utmost just at the instant that both the spinal and chest muscles are at their highest possible activity. These acts co-operate to increase the oxygen actually employed, and therefore to diminish the unstable contingent of the organism—the disease.

The discriminating reader can not fail to perceive that *flexion* of the column and *stretching* by hanging or other means are processes potentially identical. They differ in appearance, not in substance, for flexion or bending causes the convex side to *stretch* or become extended to the greatest possible degree—far more than when the processes include both sides or the whole. The coincident compression of the other half or side of the column corresponds to discontinuance of suspension when the column again receives its normal pressure of weight. The flexion process has the apparent advantage of increasing at will this compression, an important element of alternation. Both acts may be simultaneously repeated so long as may be advantageous. Both forms of the process insure thorough diffusion of the blood, filling the capillaries of the whole system at the expense of hyperæmic parts, and act specifically upon the venous contents of the spine, and are equally advantageous for cord and column.

The considerations above presented appear to show in several distinct and conclusive ways that the flexile and elastic functions of the spinal column are not only natural but indispensable; that such acts are necessary for carrying forward the two branches of nutrition of its tissues, including the osseous, nervous, tendinous, cartilaginous, and muscular; that the location of its structures and their dense nature renders the influence of both the collateral circulation and of the forces which act elsewhere in the system insufficient, at least in weakly constitutions and under unhygienic conditions; and that the flexile and elastic functions are in these cases an all sufficient supplementary force.

Syphilitic Disease of the Eyelids.—J. Hutchinson, Jr. ("Roy. Lon. Ophth. Hosp. Rep.," xii, 2), draws the following conclusions from his study of reported cases: 1. Late secondary and tertiary affections of the eyelids are met with most commonly in those who have suffered severely from their syphilis, especially those who have had rupial or tubercular skin eruptions or ulcers of the palate. 2. The upper lid is more liable than the lower one to be affected, though both are not infrequently involved. 3. The tertiary ulceration (gummatous) of the lids is more often met with in women than in men. 4. Not only do many cases of the latter resist specific treatment in a marked degree, but they show a strong tendency to relapse after being apparently cured. 5. As a rule, syphilitic ulcers and gummata of the eyelids are more painful than those met with on other parts of the skin.

Citric Acid in Milk.—"Professor Soxhlet, a French chemist, has demonstrated that cow's milk naturally contains citric acid in an almost constant proportion of one gramme to every litre. A good animal yields, therefore, at a single milking, as much of this acid as is contained in two or three lemons, and the annual aggregate throughout an extensive dairying neighborhood must be something enormous. It occurs in the form of a calcareous salt."—*Druggists' Circular and Chemical Gazette*.

DEAFNESS AS A RESULT OF NASAL AND DENTAL DISEASES.*

By D. H. GOODWILLIE, M. D.

In order to better understand this subject, it may not be amiss to call attention to the anatomical relation of the inter-nasal passages and that of the internal ear by means of the Eustachian passage, which intimately connects the two.

By reference to the illustration (Fig. 1) of an antero-posterior section of the head, the cavity of the nostril is shown *a, b, c*, represent one side of the nostril, the superior, middle, and inferior turbinated bones. Between these are three passages (*meatus*); the inferior meatus (14) is especially important to act as a drain for the secretions that fall into it from the nasal fossa and all the accessory cavities—namely, the frontal sinuses (13), tear duct, maxillary antrum and sphenoid (No. 1), and ethmoid cells.

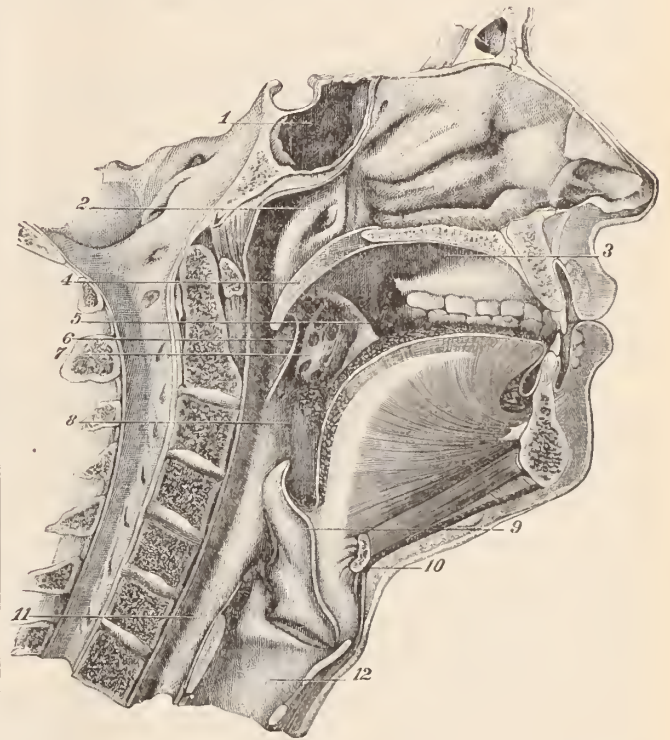


FIG. 1.

The nasal septum separates the two nostrils. At the posterior part of the lower nasal passage (14), and nearly on a line with it, is the Eustachian passage (No. 2) to the middle ear, which contains the tympanum with its contents, the ossicles, membranous walls, and mastoid cells.

The Eustachian tube (No. 2) is provided for the passage of the air from the naso-pharyngeal cavity to the middle ear. The naso-pharyngeal mucous membrane also lines the Eustachian tube, the cavity of the tympanum, the little bones, tendons, ligaments, muscles, nerves, the internal surface of the membrana tympani, and the fenestra rotunda, and extends into the mastoid cells. The tympanum contains air of the same density as that on the outside, in order

* Read before the Section in Laryngology and Rhinology of the New York Academy of Medicine, April 23, 1889.

to maintain the tension on the inner and outer side of the ear drum; in this condition there will be perfect hearing.

The air passing through the Eustachian tube to the middle ear is controlled in a great measure by the action of the tensor and levator palati muscles. The tensor palati muscle arises from the spina angularis of the sphenoid bone and from the cartilage of the Eustachian tube. It passes around the hamular process of the pterygoid, and there expands into the broad aponeurosis of the anterior surface of the soft palate. When in action it dilates the orifice of the Eustachian tube.

The levator palati arises from the lower surface of the apex of the petrous portion of the temporal bone and from the cartilaginous portion of the Eustachian tube. After passing into the pharynx it spreads out on the posterior surface of the soft palate as far as the middle line, where it blends with its fellow of the opposite side. By its contraction it raises the velum and soft palate. The increase in diameter has a tendency to close the orifice of the Eustachian by elevating the lower border.

By the conjoined action of these muscles in the act of swallowing, the Eustachian tube is rendered patent, and it is thus that intratympanic air pressure is regulated. The free ventilation of the tympanum by the action of these muscles upon the pharyngo-Eustachian orifice is essential to perfect hearing. Any condition that causes stenosis of the tube by thickening of the mucous membrane and retention of the secretions, or interference with the action of the muscles, will prevent the equilibration of intratympanic pressure, and will eventually end in otitis media and its sequelæ.

In several cases that have come under my observation where all the internasal bones had been destroyed and carried away by necrosis, along with the end of the nose, giving an excellent view of the Eustachian orifices, I have been able to observe the action of the muscles, both by direct view and also by a small mirror passed through the nasal cavity to the naso-pharynx, by which the condition of the orifice during muscular action in the opening of the Eustachian tube was reflected. In these cases there was no disease of the ear or Eustachian tube, and hearing was normal.

The action of the muscles may also be demonstrated, when there is stenosis by the thickening of the mucous membrane in the Eustachian tube, by inflating the tympanic cavity; the excess of air will be released by the opening of the tube in the act of swallowing.

The sympathetic nerve connection between the ear and other organs by the anastomosis of the tympanic plexus with nerves supplied from other parts accounts for the reflex phenomena so often observed. By means of branches from the otic ganglion, the inferior maxillary nerve is intimately connected. By the vidian nerve from Meckel's ganglion the superior maxillary of the fifth pair is joined to the tympanum.

The carotid plexus of the sympathetic sends a branch to the glosso-pharyngeal and makes connection between the ear and superior cervical ganglion of the sympathetic. There are various other nerve anastomoses that bring the ear in connection with other organs.

An irritation produced in the external auditory canal

will produce various sensations in the nose, pharynx, or larynx, manifested by coughing, swallowing, or some nasal irritation. In diseases of the nose, throat, or teeth, when gradual and long continued, a reverse condition will take place until trophic changes are produced and deafness is the result.

The intranasal sensory nerves may be divided into those of special and those of general sensation.

The olfactory nerve, a special nerve of smell, occupies the superior and middle turbinated bone and upper part of the septum.

Nerves of general sensation are the nasal branch of the ophthalmic, which supplies the upper and anterior part of the septum and outer wall of the nasal; the anterior dental branch of the superior maxillary, which is distributed to the inferior meatus and inferior concha; the vidian nerve and the upper anterior branch of Meckel's ganglion supply the upper and back part of the septum and superior turbinated bone; the naso-palatine nerve, which ramifies upon the middle of the septum; and, lastly, the anterior palatine nerve, which supplies the middle and inferior turbinated bones.

It may be seen how, from an intimate connection by continuity of tissue, a catarrhal inflammation of the nasal or naso-pharyngeal mucous membrane may be conveyed to the vascular and sensitive mucous membrane and periosteum of the middle ear, and, by developing disease, may impair the function of hearing.

The vast majority of the diseases of the middle ear manifested by deafness are the direct result of nasal or naso-pharyngeal catarrh. A very small minority are from lesion of the dental organs directly through reflex nerve influence, or more often indirectly, by setting up a degenerative process, either producing or accompanying nasal disease, which may end in middle-ear disease and deafness.

The naso-pharyngeal diseases that act as factors in the production of middle-ear disease in a large majority of cases are as follows, namely: 1. Hypertrophic rhinitis, a perverted condition of mucous membrane; hypertrophy of soft tissue covering the turbinated bones, especially the inferior, which contains erectile tissue; occasionally bone hypertrophy; deflected cartilaginous or bony septum, with occasional exostosis. 2. Growths in the nose or nasal pharynx, fibro-gelatinous polypi, naso-pharyngeal fibroid tumors, and adenoid growths. These either close up the Eustachian tube by mechanical pressure or induce a catarrhal condition. 3. Atrophic rhinitis, in which there is a destruction of the internasal tissue, a fetid, pasty catarrh that may also extend to the Eustachian tube, tympanum, and other accessory cavities. 4. Hypertrophy of the tonsils, associated with catarrhal conditions, indirectly obstructs the Eustachian orifice by impeding the action of the muscles and thus prevent intratympanic air renewal. 5. Hypertrophy of the palate from tumors, gummata, and abscess. 6. Paralysis of the palate, defective action of the muscles from cleft palate, congenital or acquired. In cases of cleft palate I have repeatedly refused to operate on account of suppurative otitis media, although all else was favorable; diphtheria, pertussis, scarlet fever, and measles are most prolific sources in childhood of rhinitis, eustachitis, and otitis media; small-

pox, syphilis, and the various specific diseases of the nose and throat.

The sympathetic nerve connection between the ears and teeth would naturally lead us to a knowledge of reflex disease in these organs. In a paper read before the New York Neurological Society, January 3, 1876, and published in the "Journal of Nervous and Mental Diseases," April, 1876, on "Lesions of the Trifacial," I called attention to the reflex nervous irritations from lesions of the dental organs and maxillary bones as the prime causes of facial neuralgia and as a factor in the production of other pathological conditions in associate parts, with a report of a large number of cases as coming under personal observation.

The branches of the trifacial appear to be very susceptible to reflex actions, which are often peculiar in their manifestations. While one person may suffer from a comparatively slight irritation, in others the same condition will produce little or no results whatever. A low vitality, a great mental strain, a rheumatic or gouty diathesis are often a predisposing cause.

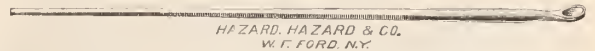
Dentition is a physiological process, and under normal conditions of physical development ought to give little or no disturbance to the vital powers. The physiological process of teething is too often considered a predisposing cause to disease. Now, the reverse is nearer the truth when we consider the anti-physiological method in which children are reared. Non-tissue-building food, bad air, improper clothing, too little sleep, and all the ailments that come at this age will produce ill-developed organs, and consequently faulty functional activity. Under such conditions the dental nerves are quite susceptible to morbid impressions, which may be reflected to adjacent organs. The same influence that produces a reflex nervous action from an erupting tooth may also set up a nasal catarrh, and this may end in ear disease; but a reflex nervous action from an erupting tooth of the first dentition without other complications may only result in otalgia. Middle-ear disease must be preceded by catarrhal disease of the internasal mucous membrane.

At the full development of second dentition, aural disease that may arise from any dental lesion will probably result from the following direct or indirect causes, namely: Pulpitis by exposure of the dental pulp by caries; this may also result in suppurative pulpitis, to be followed by a maxillary abscess. Osteo-dental development in the pulp cavity, periodontitis, periostitis, impaction of permanent teeth in the maxillary bones, maxillary abscess opening into the nasal cavity or into the antrum, setting up antrum disease, to be followed by purulent naso-pharyngeal catarrh and otitis media. Improper artificial dentures are occasionally a source of reflex troubles. Abnormal respiration through the nose from catarrh in its many forms produces also abnormal pulmonary respiration. From the same cause the air in the vault of the pharynx is in a rarefied condition and abnormally affects the intratympanal air renewal.

From what has been said it may be learned that, in order to successfully treat middle-ear affections, all naso-pharyngeal disease must be removed, and that the otologist must of necessity be also a rhinologist. I can not trespass

on your time to go into details on the treatment of the nasal and naso-pharyngeal diseases that may act as factors in ear disease, but there are, however, certain methods of treatment that I desire to bring to your attention.

One of the first things that is to be done in eustachitis or middle-ear disease is the treatment of the nasal catarrh; the removal of pent-up secretions and putting the parts into an antiseptic condition; then follow the treatment, whether it be medical or surgical. Some means must be employed that will accomplish this and do no harm to the diseased parts; the douche does harm and ought not to be used. The treatment can best be made by means of a spray of peroxide of hydrogen (fifteen per cent.). When the peroxide meets the secretion an effervescence immediately takes place, and the sticky, pasty, fœtid mucus is changed into foam. Its septic nature is entirely changed, and it can then be readily blown or wiped from the nostrils. The peroxide* is also a good germicide. Dr. B. W. Richardson, of London, in 1881 called my attention to its remarkable powers. A probe (Fig. 2) wound with cotton should then

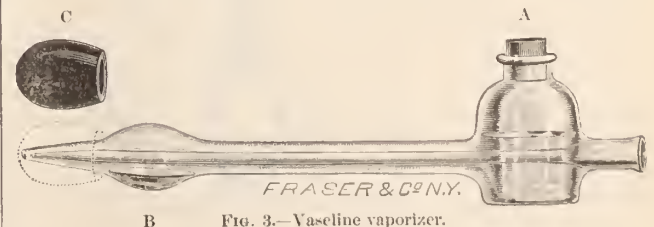


HAZARD, HAZARD & CO.
W. F. FORD, N. Y.
FIG. 2.—Nose and ear probe and curette. Half size.

be passed into the inferior meatus far enough back to wipe the naso-Eustachian orifice. This should always be done before the Politzer or Valsalva inflation is used, thereby preventing the danger of blowing foul air into the tympanum.

Most thorough antiseptic means should be used before a surgical operation and in the after-dressings. All instruments to be sterilized by dry heat or steam.

For the treatment of eustachitis and otitis media (after the removal of the nasal disease) the most efficient means is in the use of the Politzer or Valsalva method—that is, applying medical vapors by inflation. The patient is directed to take a full inspiration and then to blow gently out through the closed lips; just as he begins to exhale, apply the vapor to the nostril; then immediately close the patient's nostrils and instruct him to breathe strongly out of the nose until the tympanum is inflated. The Politzer method can just as readily be used after the vapor medication has been applied. I have obtained good results from medicated vaseline placed in an instrument prepared for the purpose, liquefied by heat, and then vaporized by air-pressure (Fig. 3). After the nasal disease has been re-



FRASER & CO. N. Y.
FIG. 3.—Vaseline vaporizer.

moved the Eustachian catheter or bougie may sometimes be of good service in opening up the tube.

* "Peroxide of Hydrogen," by Dr. W. A. Dayton, "N. Y. Medical Journal," April 25, 1885, and "Archives of Otology," vol. xiv, No. 1, 1885.

The medicated vaseline I have had prepared for me by Fraser & Co., and put up in tin tubes of half an ounce each for convenience in filling the receptacle of the vaporizer A, Fig. 3. The medicated vaseline is heated to a liquid at the bulb B. The hard-rubber nose shield C is placed over the end *immediately* after the heating and before the application is made to the nostril. Application must be made promptly after the heating.



FIG. 4.—Electric nasal catheter.

Fig. 4 represents the electric nasal catheter for carrying an electrolytic current into post-nasal growths; used also as a Eustachian catheter or bougie. The catheter as now seen is armed with the Eustachian bougie, C, which is to be drawn in before it is used. The bougie is made quite flexible, to better facilitate its passage into the Eustachian tube. When the catheter is passed into the nostril, it is best known to be at the Eustachian orifice by viewing it with the rhinoscopic mirror through the naso-pharyngeal space. Note, for future guidance, the measurements on the scale by running the slide, B, up to the end of the nose; the length that the bougie is passed into the Eustachian tube is seen on the scale at A; it is at this end the electric current is applied. The Eustachian bougie is replaced by a needle when used on post-nasal growths.

The difficulty of a rhinoscopic examination may be facilitated by a palate retractor and a tongue depressor (Fig. 5). By a skillful use of these, the palato-pharyngeal space will be so enlarged as to allow a good examination of the naso-pharynx. By means of the rhinoscopic mirror all abnormal conditions may be seen, as also the passing of the Eustachian catheter or bougie.



FIG. 5.—Tongue depressor and palate retractor.

Nasal catarrh in childhood, especially after diphtheria and scarlet fever, should have prompt and efficient treatment to avoid deafness, improper respiration, alimentation, and development.

The young are very susceptible to any treatment that

wars against the enemy to their vital force in physical and mental growth.

All cases of catarrh in the upper air-passages do not result in deafness. I have repeatedly seen all the internal bones taken away by disease and the hearing remain normal. Still, the fact remains that nearly all the middle-ear disease ending in deafness is the result of catarrh from the contiguous parts. Dental disease is often the primary cause of nasal catarrh (although it has not been so generally recognized), and the latter may produce deafness.

The following cases may serve to illustrate this subject in a practical way:

CASE I.—A. B. A., aged twenty-four, had hypertrophies of the turbinated tissues (Fig. 6, *a* and *c*), over both inferior turbinated bones, with abundant post-nasal discharge. Both tonsils very large, voice husky, deafness coming on for two years. The H. D. L. $\frac{2}{40}$, H. D. R. $\frac{45}{40}$. Removed both tonsils with the guillo-

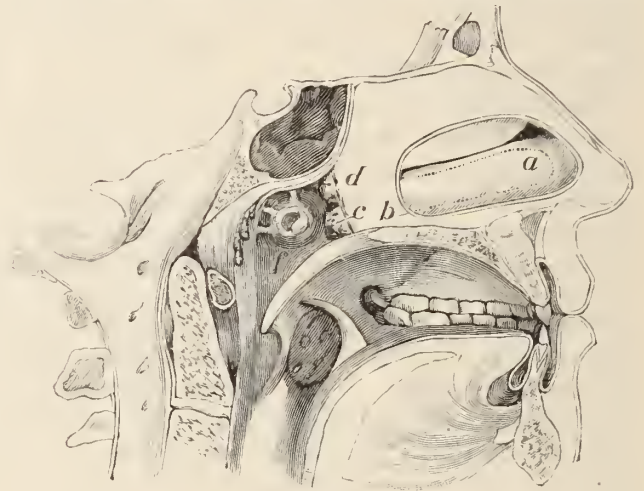


FIG. 6.

tine; then by the rhinoscope could be seen fibrous bands, *f*, passing from the edge of the Eustachian orifice to the pharyngeal folds. These bands were cut away; the turbinated hypertrophies, *a*, *c*, were scarified by the galvano-cautery knife; medicated inflations of the tympanum were applied; the catarrh decreased and the hearing returned. (Dotted line, *a*, represents the size of the inferior turbinated tissues after treatment.)

CASE II.—H. D., aged sixteen years, had diphtheria six years ago, with a large amount of false membrane in the nose and on the tonsils. His present condition is as follows: Very little nasal respiration; tonsils and hypertrophied uvula nearly fill up the naso-pharyngeal space; hypertrophied tissues over both inferior turbinated bones; deafness noticed coming on three years ago. H. D. R. $\frac{2}{40}$, H. D. L. $\frac{2}{40}$. Hypertrophied tonsils, uvula, and turbinated tissues removed, after which he recovered his hearing.

CASE III.—Rev. S. W. K., aged forty-eight years, consulted Dr. A. H. Buck for his ear trouble, but, finding upon examination that he had a muco-purulent discharge from his left nostril, the doctor kindly referred him to me. He gave the history of some *tooth* trouble three years before. At that time some temporary means were made use of, and it apparently passed away. Soon after, however, he began to suffer from facial neuralgia, followed by chills and fever and great prostration, which has severely affected his health. He was then treated for malaria. Following this was a severe rhinitis and post-nasal discharge and otitis media.

Upon making a careful examination, I found the left inferior turbinate bone entirely destroyed by necrosis, and a copious purulent discharge passing into the naso-pharynx. Post-nasal examination by the rhinoscope revealed the naso-pharyngeal opening of the Eustachian tube, left side, quite large and attached to the pharyngeal fold by fibrous bands; a muco-purulent tract down the posterior wall of the pharynx. H. D. L. by contact with a watch; H. D. R. normal. On examination of the mouth, the only remaining molar appeared dead. Suspecting this to be the origin of the trouble, it was removed, and a large trephine was passed up into the antrum by means of the electric surgical engine, and, upon its removal, about two ounces of exceedingly foetid pus passed out. This was a sufficient cause for all the local trouble, and of septicæmia instead of malaria. The patient's hearing began to be affected soon after the pus from the antrum entered the nostril, setting up catarrh and producing the necrosis of the inferior turbinate bone. The inflation of vapor of iodo-vaseline (white vaseline, $\frac{3}{4}$ j; iodol, $\frac{3}{4}$ j; menthol, one per cent.) to the middle ear, antrum, and all the passages, gave him immediate relief and resulted in great good after the cleansing. Now, after a year's treatment, his health is quite restored, and the hearing of the left ear is $\frac{6}{46}$, with no discharge from the antrum. By an examination of the molar tooth you will see the palatine root partially destroyed by the action of the pus. The hole made by the trephine through the alveolar process into the antrum is still kept open.

CASE IV.—D. H. G. had neuralgia on the left side of the head, with extreme sensitiveness at the tragus, with tinnitus aurium, which continued for some weeks. Teeth, ear, and nose were examined, but the cause could not be found. The pain suddenly stopped, but hearing not quite normal. After a few weeks the pain returned, with post-nasal catarrh and synovitis of the temporo-maxillary articulation. Teeth carefully examined again, and a small decay was discovered in the left superior wisdom tooth; the dental pulp was found dead and suppuration had taken place. Thus the mystery of the trouble was solved. The first neuralgic attack was produced by pulpitis, for after the pulp had died, most probably by strangulation of the vessels, the pain suddenly ceased. In a short time decomposition of the dead pulp took place, which excited suppuration in the surrounding cellular bone tissue about the apex of the root of the tooth. The pus found its way through the posterior alveolar process and then into the naso-pharynx, producing catarrh that extended into the Eustachian passage. H. D. L. $\frac{1}{45}$.

Treatment consisted in extracting the wisdom tooth, with the removal of any cellular necrosis; the soft parts were prevented from healing until the bone socket was filled with granulations. The post-nasal and Eustachian catarrh was treated by cleansing the parts with peroxide of hydrogen, followed by medicated vaseline vapor used by means of the Politzer or Valsalva method. The Eustachian catheter and bougie were used with good result. Hearing has returned and the nasal catarrh has quite gone. An occasional return of the synovitis is caused by exposure to severe cold winds.

CASE V.—Harry E., now fourteen years of age, had diphtheria when six years of age, followed by paralysis of the palate muscles and those of the lower limbs. There was false membrane at this time formed in the nose.

After his recovery from diphtheria he had an attack of scarlet fever, which was followed by nasal trouble, otitis media purulenta, and deafness (right ear discharging externally).

When I first saw him it was after his recovery from the fever, and his condition was as follows: Tall and slender in form, contracted chest, pleuro-plastic adhesions in posterior part of chest, weight one hundred and five pounds. His left nostril was closed by adhesion from a deviated septum to the turbinated tissue, and

with no respiration. The right nostril contained hypertrophic tissue, with little respiration. A post-nasal examination revealed a fibroid tumor growing from the pituitary fossa, and a thickening of the pharyngeal folds pressing against the Eustachian orifices, which were hypertrophied.

Treatment consisted in removing under NO, by means of my shielded nasal trephine (Fig. 7), the hypertrophied cartilage



Fig. 7.

and bone from the left nostril (the deviation and adhesion closed the nostril its entire length). After the operation one of my nasal intubation soft-rubber tubes (Fig. 8) was put into the nostril, thus giving the patient great comfort by permitting him to breathe through it. The tube was readily removed when

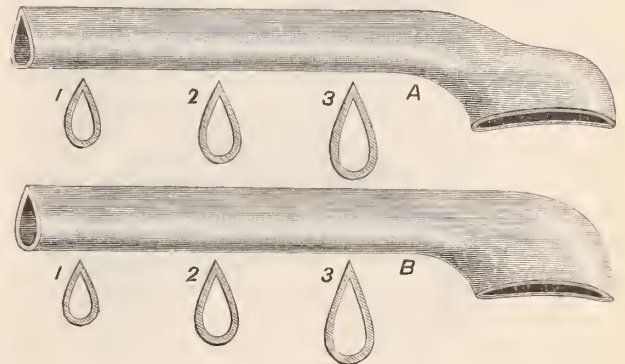


Fig. 8.—Nasal intubation tubes.

necessary for the cleansing of the nostril by peroxide of hydrogen, and as easily replaced. After having worn the tube for some three months and the parts had healed and were in normal condition, it was removed. The fibroid post-nasal growth was subsequently removed by means of electrolysis, the electrolytic nasal catheter and needle (Fig. 4) being used. By means of the inflation of medicated boro-vaseline vapors (white vaseline, $\frac{3}{4}$ j; boric acid, $\frac{3}{4}$ j; menthol, one per cent.), the ear trouble passed away and his hearing in both ears became normal.

CASE VI.—W. R. B., well developed and formerly very robust, has for several years been in a declining state of health, the cause of which appeared obscure. When first seen by me he complained of great exhaustion, with chilly sensations, fever and night sweats, pain in the right side of the face and head, skin sallow, liver torpid, and troubled with constipation and a muco-purulent catarrh discharging from right nostril. H. D. R. ear, $\frac{6}{45}$; left ear and nostril normal. Believing his trouble to be from some septic origin, I discovered it in a maxillary abscess (which came from a decayed tooth filled some years since), the exit of the pus being into the nostril, setting up the purulent catarrh, extending into the frontal sinus and into the internal right ear, producing deafness.

The treatment consisted in trephining the abscess through the alveolus, and removing also some cellular necrosis. A fistulous opening was found through to the floor of the inferior meatus and into the nostril. By good antiseptic dressing to the abscess and nostril the opening from the abscess in the jaw into the nostril closed, after which the bone cavity soon granulated and healed. A cholagogue with saline mineral waters was administered, followed by tonics. Medicated vapor inflation was made to the internal ear, and after three months' treatment the patient was able to attend to his business. His hearing very much better. H. D. R. $\frac{30}{40}$.

CASE VII.—A. E. L., when quite young, began to suffer

from naso-pharyngeal catarrh, non-respiration through the nostrils, and consequently mouth breathing and defective pulmonary development, with nasal tone to voice.

This condition was produced by ailments incident to childhood, in which the nasal trouble received no treatment at the proper time. When I first saw her, at the age of twenty-two years, deafness had been gradually coming on for a number of years, until now the watch could only be heard by contact to the ear. The ear drums were contracted.

Fig. 9 represents the case. Inferior turbinated tissue hypertrophied and extending backward to near the Eustachian ori-

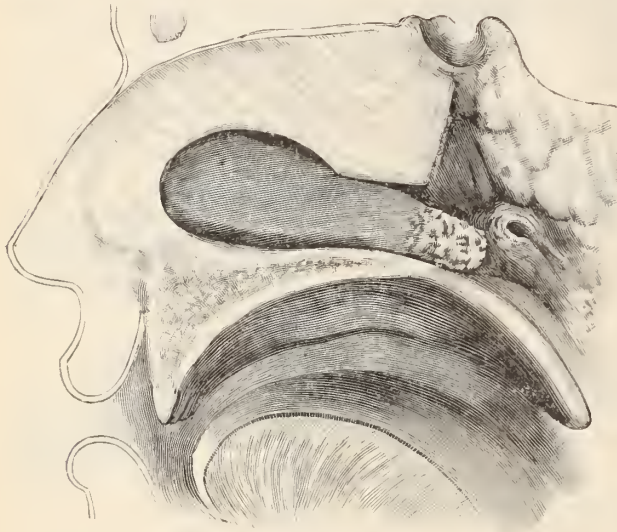


FIG. 9.

fice. By a posterior rhinoscopic view, by means of the mirror and palate retractor (Fig. 5), the adenoid growths could be seen pressing down on the Eustachian orifice, which, together with the catarrhal conditions of the tube, prevented air entering into the tympanic cavity.

After thorough cleansing with peroxide of hydrogen, the anterior two thirds of the hypertrophic turbinated tissue was treated by scarification with the electro-cautery knife; the posterior hypertrophy removed by means of my forceps snare. One of my internasal tubes was introduced after the operation, and worn with comfort until the parts healed and contraction took place. The adenoid tissue was removed by the posterior nasal forceps. By these means the nasal respiration was restored, mouth breathing ceased, and the whole body responded to a change for the better. Inflation continued for some time after the preliminary treatment, with the result of H. D. R. $\frac{5}{40}$, H. D. L. $\frac{6}{40}$, which was better than anticipated, considering the condition.

160 WEST THIRTY-FOURTH STREET.

Alleged Contagiousness of Cancer.—"A small commune in Normandy, Saint Sylvestre-de-Courcelles, with a present population of only 379, as compared with 500 twenty years ago, has in the eight years 1880-1887 lost no fewer than eleven of its inhabitants, between the ages of sixty-two and eighty-three, from cancer—a proportion of 15 per cent. of the total mortality. All but one of the cases occurred in males, and in as many as eight the cancer was seated in the stomach. Such facts have led Dr. Arnaudet ('L'Union méd.,' No. 52) to conclude that cancer is contagious, and is propagated through the medium of water. It is true, he remarks, that not one of the eleven persons mentioned were water drinkers, but then they drank cider, which is made with the pond water of the district. Dr. Arnaudet thinks this sufficient ground to advocate the use of anti-septics and of boiled water as prophylactics against cancer, as well as against typhoid fever or phthisis."—*Lancet*.

A CASE OF
GUNSHOT WOUND OF THE HEAD;
BULLET LOCATED BY MEANS OF THE TELEPHONIC PROBE.
OPERATION; RECOVERY.

By GEORGE R. FOWLER, M. D.,
SURGEON TO ST. MARY'S HOSPITAL AND TO THE METHODIST EPISCOPAL
HOSPITAL, BROOKLYN, N. Y.

On December 11, 1888, I was requested by Dr. Burger, of this city, to visit with him M. H., a five-year-old boy, who, while playing with a younger brother, suffered a gunshot wound of the face from the accidental discharge of a thirty-two caliber revolver. Dr. Burger saw him immediately after the accident, and simply dressed the wound with a carbolized-water dressing, pending efforts to locate and remove the missile.

Upon my arrival I found the little patient lying upon the lounge, with the region about the left eye swollen, and suffering considerable pain. The face and eye were burned with powder, showing that the pistol had been fired at close range. A bullet wound with blackened edges was observed upon the left side of the face, just below and about on a line with the infra-orbital foramen. After thorough disinfection of the surrounding parts, the wound was probed, but the only information obtained by this was the fact that the anterior wall of the antrum of Highmore had been perforated by the ball. The probe passed directly backward and was arrested at the depth of an inch, but whether by bone or the bullet could not be determined. The telephonic probe was then brought into requisition in the following simple manner, as suggested by Dr. Girdner, of New York: An ordinary metallic sound-gauge was attached to about two feet of ordinary insulated copper wire, and the other extremity of this latter was attached to one of the binding posts of a telephone (receiver); from the other binding post of this instrument a similar piece of wire passed to the eye of a silver pocket-case probe. The sound-gauge was held firmly pressed against the surface of the cheek of the child, and, with the telephone applied to my own ear, I passed the probe again down through the wound, and heard the characteristic rasping, clicking sound in the telephone, which announced the contact of the probe with some metallic substance in the tissues. Following the course of the probe, the ball was extracted without difficulty from the speno-maxillary fossa by means of a Péan forceps. The antrum was then cleared of blood clot, and further search revealed the bony fragments resulting from the crushing of the anterior and posterior walls of the antrum, which were removed. The ball had passed directly through the antrum, and had lodged in the speno-maxillary fossa. The fragments of bone representing the comparatively thick anterior wall of the antrum, as well as those resulting from the crushing backward of the thin posterior wall, were easily identified upon removal. The bullet itself bore upon its further extremity a deep indentation where it had impinged upon the sharp ridge on that portion of the greater wing of the sphenoid bone which separates the zygomatic fossa from the speno-maxillary fossa.

Pasteurism and the Rabbit Pest in Australia.—"It is reported that Dr. Germont and Dr. Loir, who were sent to Australia on behalf of M. Pasteur in order to give practical proof of the efficacy of his plan for exterminating rabbits, have returned much dissatisfied with their reception in the colony. They allege that a law was passed preventing the introduction of microbes, and that the Rabbit Commission reported against M. Pasteur's method without having a public trial. As a consequence of this, M. Pasteur refused to accede to the request of a number of sheep-owners to have their stock vaccinated for anthrax. Altogether the impression brought home by the French scientists is evidently that they have not had fair play."—*Lancet*.

A FATAL CASE OF ICTERUS NEONATORUM.

By JOHN R. HINKSON, M. D.,
BLISSVILLE, LONG ISLAND CITY.

Mrs. V., an emaciated woman, aged thirty-two, mother of seven children, had been troubled with symptoms of renal calculi for about a year. She was confined on July 1st, the presentation being left shoulder, dorso-anterior. I administered chloroform and performed bipolar version early in the first stage. Labor continued for about six hours, and when the body of the child was born the head was arrested and was extracted after some delay with considerable difficulty. The occiput was anterior, and the method used in extraction was by pressing the fingers of the left hand on the back of the neck and by carrying the feet well forward with the right.

The child, a female, when born was asphyxiated and artificial respiration (Sylvester's method) was performed for over an hour before she recovered. The child appeared perfectly healthy till the following morning, when it showed symptoms of jaundice, which became well marked on the next day, with considerable conjunctival congestion, and death occurred late that evening.

On making an autopsy, I found a large extravasation of blood behind the peritonæum in front of the right kidney, the gall bladder was moderately distended, and the left kidney was larger than the right.

The nurse told me on the evening after birth that the child did not pass water, so I ordered her to place her in a warm bath, after which she micturated freely.

I am unable to say whether the jaundice was the cause or the result of the extravasation, but I think it probable that jaundice was caused by the pressure of the tumor on the duodenum and bile duct, although I do not believe there was any violence used in delivery or resuscitation to account for the hæmorrhage.

Toxic Symptoms produced by Glycerin.—“Dr. Jaroschi recently reported to a Prague medical society a case which had come under his care of a man who, having been induced by something he had seen in a popular journal concerning the virtues of glycerin to take large quantities of it, soon became seriously ill. He suffered from vomiting, painful defecation, and pain in the calves of the legs. Under suitable treatment, the glycerin being of course interdicted, he was not long in recovering. The ætiology of the case is not very clear, but it seems that the glycerin used was bought, not from a chemist's, but from an oil shop, as it was cheaper there, and it is said that the glycerin of commerce not infrequently contains a very appreciable quantity of arsenic; at least Ritzert, who investigated the matter some time ago, reported that he had found ‘large quantities’ of arsenic in commercial glycerin. As glycerin is now very frequently prescribed for rectal use, and as patients frequently purchase it at oil shops, it would appear to be important to get the question of its liability to contain arsenic settled, and if any uncertainty be found to exist, it would be well to caution patients to buy their glycerin at a chemist's.”—*Lancet*.

Prognosis of Cirrhosis of the Liver.—“Professor Semmola, of Naples, in a clinical lecture on cirrhosis, published in ‘Il Progresso Medico,’ maintains that the prognosis of the disease depends entirely on the quantity of urea excreted during twenty-four hours, as he has proved to his own entire satisfaction in seven cases. He teaches that increase in the secretion allows a much more favorable prognosis than a decrease. The quantity of urea secreted corresponds, according to him, with the functional activity of the hepatic cells; so that the extent of nitrogenous metabolism is proportionate to the number of normally acting cells. For the treatment of the disease Professor Semmola recommends an exclusive milk diet, which must be systematically and regularly administered.”—*Lancet*.

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THE “TICKETED HOUSES” OF GLASGOW.

A VERY singular sanitary provision obtains in Glasgow whereby any poor class of house that is in danger of overcrowding may be marked with a tin ticket. This ticket must state the cubic contents of the house and the number of inmates who may be received. It is placed upon the outer door. A system of night-inspection over such houses is maintained by the police, whose duty it is to prosecute, if overcrowding takes place. It is a police measure, but it had its origin in typhus-fever prevalence and restriction. The “ticketed houses” are avoided by the better class of tenants, and landlords are always given timely warning before a new one is added to the list, so that the reputation of the property may be saved by the exclusion of the overcrowding people. Dr. James B. Russell, medical officer of that city, gives a history of this system in the Glasgow “Sanitary Journal,” and points out the high death-rate that occurs in these homes of the very poor. From the figures given it appears that nearly 25 per cent. of the population of Glasgow consists of families who have but one room, and nearly 45 per cent. of those having two rooms only. These two classes grouped comprise a little less than 70 per cent. of the whole city. The size of the family occupying a one-room house is, on the average, 3.17 persons, while in the two-room house the average is 2.92. The mean death-rate of these two classes, taken together, is given at 27.74 in a thousand; of those who live in houses of three and four rooms it is 19.45, while in houses of five rooms and upward it is only 11.25. Dr. Russell goes yet more thoroughly into his subject, in that he ascertains how much is paid by every class of tenant for each 1,000 cubic feet of air; the “ticketed house” brings in a better rental, on the cubic-foot basis, than the model building with its many attractive features. “Poverty,” he says, “instead of receiving a discount, has to pay interest.” The poor not only get “an adulterated property,” as the author terms it, but are charged for it more than others who are able to pay for better housing. Dr. Russell quotes the New York Tenement House Act of 1888 with high commendation, and hopes that the day will come when Glasgow will explore some of “the unexhausted resources of legislation,” instead of experimenting with such half-way measures as the “ticketed house” system, “if only the people will wake up to the fact that health has proprietary rights, as well as heritable property.” The slowness of the legislators appears to beget in him a kind of righteous impatience, as if he were the paid advocate of the abject poor—and advocate he certainly is. He sharply charges the owners of this lowest class of property with imposing taxes not only on health, life, and a purer air, but on “character and fortune.”

His argument is that there is a degradation and loss of the future necessarily implied in a descent to the "ticketed house." They who dwell there take on a depraved *morale* that is in keeping with the State-permitted vileness of the domicile; their character has the ticket on it, as well as their tenement.

PARTURITION IN RUSSIA.

CERTAIN articles by Mr. George Kennan, which have appeared in the "Century Magazine" during the last year or more, have given important information in regard to some phases of Russian political and social life. It would seem from these that the famous *mot* of the first Napoleon was still pertinent: "Scratch a Russian and you'll find a Tartar." That much of Russia is still barbarian was shown by the statistics presented by Dr. Krayevich at the recent Third Congress of Russian Physicians. It was stated that there were five million births annually in Russia, and that of this vast number only one hundred and fifty thousand received assistance at the hands of physicians. One million two hundred thousand are assisted by either physicians or midwives, but the latter, as a rule, are poorly trained and unintelligent. The remaining three million eight hundred thousand are unattended by any obstetric assistance; that is to say, that number of women experience the pains and dangers of parturition yearly with no more assistance than can be furnished by the members of the household or the neighborhood. It is also stated that the midwives tend to increase, rather than to diminish, the death and disease which accompany parturition. Another Russian (Kotovshikov) reported that the mortality from puerperal fever was seven to each thousand births—that is, thirty-five thousand deaths annually from this one disease. The average number of children borne by a Russian woman being four, it follows that parturient women are exposed to this serious danger four times during the child-bearing period. Add to this the fact that, while many women escape with their lives, the performance of what should be a natural function entails upon them disease and deformity which makes them useless for life. In other words, one hundred and seventy-five thousand women annually suffer seriously from want of proper attention during the parturient and puerperal periods, including the thirty-five thousand who die from puerperal fever. To remedy this terrible condition of affairs it is proposed that all midwives be required to attend courses of instruction which shall fit them for performing their work antiseptically. This is well as far as it goes, but what of the thousands and hundreds of thousands to whom a midwife is never accessible? It seems hardly credible that in a so-called civilized country so little advantage could have been derived from the beneficent advances and improvements of the last quarter of a century. Surely the lot of our Russian *confrères* in stemming this tide of disease and death is a hard one! And to do this in an atmosphere in which suspicion and intolerance check the best results and the freest endeavor but increases the labor and its hopelessness. Could there be a more suggestive commentary upon Russian institutions and Russian development than these statistics?

MINOR PARAGRAPHS.

SIR ANDREW CLARK.

A VERY interesting occasion was that recently at the London Hospital, when Sir Andrew Clark was made the subject of a portrait on behalf of his associates and other friends. According to the "Lancet," Dr. Clark made a feeling response, and became autobiographical, narrating the trials of his student life. He had been thrown on the world without a friend, his parents died before he knew them, no relative had he to whose home he could resort, he went to London without letters, and he had there just one acquaintance. Added to this his health was poor. He had a small patrimony and a great love for work. By some chance he became an assistant in the London Hospital; at this stage an opponent said of him: "Poor Scotch beggar, let him have the place; he can not possibly live more than six months." He offered these and other reminiscences for the encouragement of his juniors, and especially for those who love work for the work's sake.

HYDROPHOBIA FROM THE CAT.

THE "Bulletin of the North Carolina Board of Health" reports the death of a child, two years of age, at Wilmington. The child was bitten on its face by a cat, at Florence, S. C., and in about five weeks hydrophobia appeared. The child died early in the attack, "but all the symptoms were well marked." This is said to be the first death by hydrophobia known to have occurred in Wilmington.

MIDSUMMER CHARITIES.

AT Long Beach and Arverne-by-the-Sea, the charitable people have not forgotten the sick children left behind in the cities. At the latter place, the financial results of an evening's entertainment have been made over to the babies' ward at the Post-graduate Hospital. From Long Beach, a check for \$1,030 has been sent to the "World's" Sick Babies' Fund, the proceeds of a fair held by the ladies sojourning at the hotel at that place.

THE "FLINT DISEASE."

DR. W. S. FORWOOD addressed the Medical and Chirurgical Faculty of Maryland, at its last annual meeting, on the subject of the pulmonary disease of quarrymen. He stated that the "flint disease" was frequent and fatal among those who worked in the quarries of Harford County. Few of the men escaped, and, as a rule, their lungs were permanently damaged, even if they gave up the occupation after a year.

MITHRIDATISM.

PROFESSOR LANKESTER proposes, in "Nature," that this new word be admitted to the scientific vocabulary, to signify that immunity from the effects of a poison which is induced by the administration of gradually increased doses. The selection of the word has reference to the fable concerning Mithridates, King of Pontus, that he became so charged with the poisons he experimented with that he obtained an immunity from them all.

THE LATE DR. ALEXANDER B. MOTT.

DR. AUSTIN FLINT, the secretary of the faculty of the Bellevue Hospital Medical College, writes to us as follows, under date of August 15th: "The faculty of the Bellevue Hospital Medical College desire to record in their minutes an expression of deep sorrow at the death of their associate, the late Professor Alexander B. Mott. Professor Mott was one of the few remaining

members of the original faculty of the college. For twenty-eight years he had given his best efforts to the institution, of which he was one of the founders; and many thousand alumni can bear testimony to the value of his teaching. Endeared to his colleagues by long and intimate association, his death is felt by each one as the loss of an earnest teacher, a good and a true friend."

NEW ENGLISH MEDICAL SERIALS.

"STUDIES in Clinical Medicine" is the title of a semi-monthly journal which will be edited by Dr. Byrom Bramwell, the pathologist and clinician of the Durham University Medical School. Mr. Jonathan Hutchinson proposes to issue a quarterly, called the "Archives of Surgery." It will contain the cream of his voluminous note-books, and will have colored and other illustrations. His expectation is to continue the publication not longer than four years.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 20, 1889:

DISEASES.	Week ending Aug. 13.		Week ending Aug. 20.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	65	14	29	12
Scarlet fever.....	31	0	42	1
Cerebro-spinal meningitis....	2	2	1	1
Measles.....	42	1	27	1
Diphtheria.....	73	23	79	19

The New York State Medical Association.—The seventh special meeting will be held in Port Jervis on Tuesday, the 27th inst., under the presidency of Dr. W. T. Lusk, of New York. Dr. W. B. Eager will read "Some Observations on the Use of Concentrated Lactic Acid"; Dr. J. H. Hunt will read a paper on "The Treatment of Typhoid Fever, with special reference to the Cold Water Method"; and Dr. H. B. Swartwout will present a case of empyema.

The Association of American Physicians.—The fourth annual meeting will be held in Washington, in the Medical Museum and Library, on the 18th, 19th, and 20th of September. The programme includes the following items: The president's inaugural address, by Dr. Francis Minot, of Boston; "The Early Stage of General Paralysis," by Dr. C. F. Folsom, of Boston; "Tetany," by Dr. James Stewart, of Montreal; "Tetany and a New Theory of its Pathology," by Dr. John T. Carpenter, of Pottsville, Pa.; "Thrombosis of the Cerebral Sinuses and Veins," by Dr. A. B. Ball, of New York; "Chylous Effusions into Serous Cavities," by Dr. S. C. Busey, of Washington; "Substitutes for Opium in Chronic Diseases," by Dr. J. F. A. Adams, of Pittsfield, Mass.; "A Remarkable Case of Slow Pulse," by Dr. D. W. Prentiss, of Washington; a discussion on "The Relation between Chlorosis, Simple Anæmia, and Pernicious Anæmia, including Leucocythæmia and Hodgkin's Disease," by Dr. Frederick P. Henry, of Philadelphia, and Dr. F. Forchheimer, of Cincinnati; "Primary Cancer of the Duodenum," by Dr. E. N. Whittier, of Boston; "Primary Cancer of the Gall-Bladder and Ducts," by Dr. John H. Musser, of Philadelphia; "Gastric Neurasthenia," by Dr. G. M. Garland, of Boston; "Specimens from Two Cases of Cretinism," by Dr. W. F. Whitney, of Boston; "The Anatomical and Physiological Relations of Lesions of the Heart and Kidneys," by Dr. H. F. Formad, of Philadelphia; "The Contagium of Diphtheria," by Dr. P. Gervais Robinson, of St. Louis; "A Supplementary

Inquiry into the Frequency with which Lead is found in the Urine," by Dr. James J. Putnam, of Boston; a discussion on "The Relations of Rheumatism to Rheumatoid Arthritis," by Dr. William Osler, of Baltimore, and Dr. Morris Longstreth, of Philadelphia; "How far may a Cow be Tuberculous before the Milk becomes Dangerous as a Food-Supply?" by Dr. Harold C. Ernst, of Jamaica Plain, Mass.; "The Bacillus Tuberculosis," by Dr. J. T. Whittaker, of Cincinnati; and "Hot-Air Inhalations in Tuberculosis," by Dr. E. L. Trudeau, of Saranac Lake, N. Y.

"The Chicago Medical Journal and Examiner."—The suspension of this journal has been announced, in its forty-sixth year. It has undergone a number of changes of name and plan of conduct, but for the greater part of its career it has represented the best side of the Chicago profession. We suspect that where weekly journals exist and can be supported, the permanence of the monthly periodical, not special in character, will generally be threatened and perhaps lost.

The American Otological Society.—The annual meeting was held at the Pequot House, New London, on July 16th. Dr. Oren D. Pomeroy, of New York, was chosen president, and Dr. J. J. B. Vermyné, of New Bedford, was re-elected secretary and treasurer.

Typhoid Fever in Philadelphia.—There are between 400 and 500 cases of fever in Philadelphia, many of them in the Kensington district. Twenty new cases having occurred in that district, the authorities have taken steps to discontinue the use of some part of the water supply that contains Delaware River water of a suspicious character.

The Chicago Board of Health.—Dr. Oscar C. De Wolf has resigned the position, held by him for thirteen years, of health officer of Chicago. He is to be succeeded by Dr. Swayne Wickersham.

The American Dermatological Association.—The next annual meeting will be held in Boston, during the three days beginning September 17th. For particulars, address Dr. George H. Tilden, of No. 122 Marlboro Street, Boston, secretary and treasurer.

A Medical Library for Chicago.—The collection of books and journals comprising the private library of the late Dr. J. S. Jewell, of Chicago, has been purchased by members of the profession in that city, with a view to building up from it a great medical library. The ease with which the funds necessary to save this collection from dispersion under the hammer of the auctioneer were raised presages the early founding of a medical library worthy of a great city like Chicago.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 17, 1889:*

- ROGERS, B. F., Surgeon. Detached from the U. S. S. Alliance and to wait orders.
- HARMON, G. E. H., Surgeon. Ordered to the U. S. S. Constellation. August 13th.
- LOWNDES, C. H. T., Assistant Surgeon. Ordered to the U. S. S. Constellation. August 13th.
- DECKER, C. J., Assistant Surgeon. Detached from the U. S. S. Lancaster and granted four months' leave of absence.
- BALDWIN, L. B., Passed Assistant Surgeon. Detached from the U. S. S. Ranger, ordered home and to wait orders.
- HARVEY, H. P., Surgeon. Ordered to the U. S. S. Ranger.
- LOVERING, P. A., Passed Assistant Surgeon. Ordered to the Receiving Ship Wabash at Boston, Mass.
- SIEGFRIED, C. A., Surgeon. Ordered to the Naval Station at New London, Conn.

OBITUARY NOTES.

Alexander B. Mott, M. D., died on the 12th inst., after a short illness. He was a son of the renowned Dr. Valentine Mott, and inherited much of his father's aptitude as an operator. He was for many years a teacher of surgery, having been one of the original members of the faculty of the Bellevue Hospital Medical College. He was a graduate of the Medical Department of the University of Pennsylvania, of the class of 1850. He was a general practitioner, and was much esteemed by his patients. He rarely contributed to medical literature, and was not often heard at medical meetings. Among his meritorious undertakings may be mentioned the establishment of the Mott Memorial Library, having his father's collection for its nucleus, and an endeavor to secure the equipment of an institution for carrying out the Pasteur plan for the prevention of rabies in New York.

Letters to the Editor.

METHYLENE BICHLORIDE AS AN ANÆSTHETIC.

LIVONIA, N. Y., August 20, 1889.

To the Editor of the *New York Medical Journal*:

SIR: In your Paris correspondence dated June 28th, published in the "Journal" for August 17th, is mentioned some experimentation with chloride of methylene. I employed the article, bichloride of methylene, as a substitute for chloroform and ether several years ago in a few cases of ovariectomy, on account of its being so strongly recommended by Sir Spencer Wells. I do not know that any one else in western New York has employed it, except in one instance hereafter mentioned.

In my hands it has proved a very pleasant and satisfactory anæsthetic. Its action was very rapid, requiring not over five minutes to induce complete anæsthesia, and the patient as rapidly passed from under its influence, so that its administration demanded the closest care on the part of the one having it in charge. It was followed by little vomiting as compared with chloroform or ether; it seemed less depressing than chloroform and somewhat more so than ether, although I employed it in too few cases to judge of its comparative safety. In a case of ovariectomy of Dr. J. W. Whitbeck's, of Rochester, at which I was present, at my suggestion methylene was employed; but, the operation bidding fair to be prolonged, it was deemed best, after an hour and a half, to substitute ether as possibly being safer. Methylene seems best adapted to operations which are likely to be completed within an hour and in which the absence of vomiting is important. The article is exceedingly volatile, requiring to be kept under water. I have of late employed ether on account of its recognized safety and cheapness (taking waste into account), and not because bichloride of methylene is not more pleasant to use. CHARLES H. RICHMOND, M. D.

THE NIGHT TERRORS OF CHILDREN.

SARDIS, OHIO, August 6, 1889.

To the Editor of the *New York Medical Journal*:

SIR: In a recent number of the *Journal* you referred to an article in the "*Albany Medical Annals*," by Dr. G. L. Ullman, on "Night Terrors of Children," in which he not only condemned severe measures, but advocated patience and nervous sedatives. In your last issue, Dr. J. G. Biller, of Correction-

ville, Iowa (a seemingly appropriate name), mildly criticises this treatment, and cites the case of his own child to prove that "spanking," if not a specific in such troubles, is at least of "great benefit." Did it not occur to the father that the fear of this peculiar medication may have deterred the child from exhibiting his terror after becoming fully awake, especially if it was an heroic dose? Aside from the judicious advice of Dr. Ullman, did it not suggest itself to Dr. Biller that attention to the alimentary tract, worms, indigestion, etc., might have been a much better corrective to the poor little fellow's nervous condition than the *external application* to which he was subjected?

B. DENNIE, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

Meeting of April 23, 1889.

Dr. C. C. RICE in the Chair.

A Case of Syphilitic Adhesion of the Tongue and Soft Palate to the Posterior Wall of the Pharynx.—Dr. J. E. NICHOLS presented a case of this sort. The initial lesion had been developed sixteen years before. Two years after this the patient had fallen on his face and sustained a fracture of the nasal bones, which had been followed by ulceration and the discharge of particles of bone. Some time after this the patient had, as he had expressed it, "caught a cold," which had settled in his pharynx, and after the period of soreness had passed away there had been much contraction of tissue there. Subsequently it had been found that the septum was perforated, and still later that both the bony and the cartilaginous septa had disappeared. Contraction in the hard palate had also become developed. After several years the patient had begun to notice that he had difficulty in swallowing and breathing. Now, owing to the extensive adhesions between the soft palate and root of the tongue, and the posterior wall of the pharynx, an opening of only half an inch or less in diameter existed, through which air and food could enter the throat. The adhesions also included the surfaces of the posterior palatine arches. The epiglottis was still free and visible. Phonation was normal.

From time to time ulcerative inflammation became developed in the contracted tissues which afforded the patient great relief, as it caused the opening at the back of the throat to become somewhat larger, and so seemed to be a beneficent effort on the part of nature to prolong life. The use of œsophageal bougies had afforded no lasting relief in the way of enlarging the opening, but a marked gain in general health had followed a very frequent introduction of the bougie (sixteen times each week) during a short period, when the speaker had had the case in charge, at the Charity Hospital, and the patient had increased remarkably in weight for the time. This had been due apparently to the better breathing thus made possible to the patient. This treatment not having been continued after the term of his service had expired, the speaker could not say what ultimate results might have been obtained by a more or less incessant use of the sound, but he feared that no permanent change in the size of the passages could be so obtained. He presented the history of the case in the hope of hearing some opinions as to the best treatment that was available in such a case. He himself thought the galvano-cautery might be used successfully.

Dr. BEVERLEY ROBINSON remarked that the cases belonging to the class to which this belonged were always very annoying and troublesome to deal with, whether by the knife or the galvano-cautery. Whatever operative measures were undertaken to increase the size of the passages, the result was apt to be disappointing, owing to the abundant formation of cicatricial tissue, or else a subsequent continuation of the old inflammatory process, which was especially difficult to prevent. It really came down to a question of our being able to secure for the patient a practically continuous series of dilatations, for we could rarely do anything else for his relief.

While this subject was in the field he wished to again allude to a matter to which he had already called attention, but which his recent experience had continued to prove to him had a good basis in fact. He referred to the peculiar effect of monochloroacetic acid when applied to a cut surface or, especially, one eroded by a suppurative process. The eschar which resulted differed from that left by any other caustic application in that it remained *in situ* until the scar tissue formed under it was entirely healed up. This acid, therefore, had a peculiar usefulness where subsequent adhesions of cut or eroded surface were feared.

In the class of cases under consideration he had employed different sorts of dilating instruments, had torn through the obstructing tissue, used scissors, cautery, and escharotics, but had come finally to the conclusion that the most good could be effected by the use of graduated steel sounds. Whenever possible, the patient should be taught to use a suitable dilator himself, so that he could operate on his own throat daily or oftener, and secure the maximum of relief from his dyspnoea.

Dr. DAVID WEBSTER suggested that Dr. Goodwillie, having had much experience in plastic operations in cavities lined by mucous membrane, could probably impart valuable information as to what the chances of success would be for an operation made with a view of getting an opening in such a case as the one under consideration, and securing its permanency by transplanting flaps of mucous membrane on to the raw surfaces at the outset.

Dr. D. H. GOODWILLIE replied that he could best answer the question raised by Dr. Webster by relating the history of a case somewhat similar to the one just presented, with the exception that there was a cleft of the soft palate, which had been under his care. Here, also, had been adhesions of the soft palate to the posterior pharyngeal wall. He had been in great doubt as to whether he should get an opening from the posterior nares to the throat by releasing the adherent parts, since the passage so made would be lined by a large amount of secondary tissue, the instability of which he had been well aware of. However, he had decided to release them a little at a time, with short intervals between sufficient to allow of the desired change in the tissue, and so avoid the otherwise inevitable ulceration of the soft secondary tissue. Accordingly, he had in a series of operations, continuing for many weeks, gradually cut away the palate from the posterior wall, and, having freshened the edges of the cleft palate, succeeded in getting it to unite by first intention, although in secondary tissue. Such an operation needed great patience and care. The nose must be kept during the treatment in the most thorough manner antiseptic, as when preparing to operate for cleft palate. He was opposed to the use of the cautery or caustics in this class of cases, owing to the suppuration of the secondary tissue which followed its employment. Quite a different method or device, with which he had recently had very encouraging success, was a thin plate of gold of suitable shape and convexity, which he fastened to the upper surface of the palate. Minute button-headed pins passed through the primary and

sound tissue at the side of the cleft palate and entered screw-holes on the plate, so that the two halves of the palate united by sutures could be held together securely and the whole separated from the pharyngeal wall at the same time. The line of union would be protected from the nasal secretion.

Dr. H. HOLBROOK CURTIS remarked that he had seen several such cases treated in Paris by the introduction of large probangs, and especially of smooth leaden dilators which were left *in situ* for several hours. He had not made use of the cautery or of acids in these cases. In his experience, dilators were our only practical resource. A cutting operation, however extensive, would have to be followed by the persistent use of the dilator as healing went on, and probably after it was complete.

Dr. E. V. AGRAMONTE thought that in the present case it might as well be recognized that the real difficulty under which the patient labored was an atresia of the glottis and the consequent slow asphyxia. We not only needed to dilate the passage, but to keep the dilator in more or less permanently, and so why not do at once what would soon be absolutely necessary to the continuation of life—put in a tube?

The CHAIRMAN remarked that five or six years ago he had had two such cases come under his care, and that in looking up the literature of the subject at that time he had found accounts of several ingenious devices for keeping the parts separated after operation. One of these was to have the patient wear a thin lead plate on the palate which was held in place by a strand of silk fastened to the top of the plate and leading forward through the nose, and another from its inferior edge passing down, to be fastened to one of the teeth. Another was to make an artificial opening into the naso-pharynx through the hard palate, split up the soft palate into folds, freshen their anterior surfaces, make raw corresponding surfaces on the roof of the mouth, and obtain union of the flaps of the soft to the hard palate. He thought most patients would object to such an operation as this.

It was to be remembered, in cases of syphilitic faucial adhesions like the present, that there was a large amount of cicatrization above and below the point where the palate was adherent, and for this condition of the parts dilatation and traction needed to be kept up all the time.

A Naso-pharyngeal Polypus.—Dr. J. W. GLEITSMANN presented a patient having such a growth who had first come to him in February, 1888, complaining of a difficulty in hearing. He had found a large, soft tumor in the upper pharynx, attached upward and inward from the orifice of the Eustachian tube. There had been no nasal breathing through the right nostril. He had attempted vainly to remove it by the knife and then by a snare. With each attempt it had slipped out of his reach. He had, however, succeeded in making a number of punctures in it with the galvano-cautery needle. This had caused a contraction of its substance which had lasted for upward of a year, but now it had reappeared and blocked up the whole of the right posterior nares. What treatment was now in order he was in some doubt about. Had he best use the cautery a second time?

Dr. ROBINSON thought, from what had been said, that the growth must be a mucous polypus. He had once had a similar difficulty in attempting to remove a slippery post-nasal tumor by a snare or knife. Finally, with an applicator he had injected it with chromic acid and withered it up. It could not be denied that these tumors sometimes had a way of slipping upward so that no instrument would enable one to grasp them.

Dr. CURTIS took an opposite view, and believed that a snare could be adapted so as to reach around any such tumor by the aid of a hook or wire.

Dr. A. H. SMITH had had only a few cases of naso-pharyngeal polypus, and had always been able to snare them off. There had

been no recurrences in his cases. In the last of these cases the tumor had been of more than leathery hardness, and its pedicle had proved to be as resistant a piece of fibrous tissue as he had ever met with. The loop of an écraseur, consisting of the best piano-wire, had been passed around it, but when he had attempted to bring the loop home it had met with a resistance which it could not overcome, and he had finally broken the wire in his attempts, the pedicle, however, remaining firmly fastened in the end of the instrument into which the wire had drawn it. Traction on the handle of the écraseur had finally torn the whole growth away from its attachment to the basal process of the occipital bone. There had been no recurrence. No hæmorrhage had followed this forcible extraction either, but he would like opinions as to whether such a procedure as a means of extracting all fibrous polypi from the naso-pharyngeal space could be regarded as a safe one.

Dr. GLEITSMANN replied to Dr. Curtis that he had tried the method of removal by snare in each of two cases of the sort under discussion, and had succeeded both times, but in one case he had met with such difficulty that it had finally been necessary to put the patient under chloroform. Then, after long and tedious trials, he had succeeded in getting the loop about the base of the tumor, and, after keeping it there for many hours, the growth had sloughed away. So he agreed with Dr. Robinson that it was sometimes very hard to get any instrument around the pedicles of these growths.

Dr. CURTIS said he had been speaking only of mucous polypi; but in the case of the denser fibrous growths he had always succeeded in extracting them by giving a little ether, using a tongue depressor, and grasping the tumor with a double curette forceps.

The CHAIRMAN remarked that he had been accustomed to use a heated snare to remove the fibrous growths.

A Painful Fungous Growth of Unknown Character at the Base of the Tongue.—Dr. CURTIS presented a patient from whose mouth a growth of problematical origin had recently been removed, the site of the tissue being still visible on the tongue. Eight days before coming to the speaker the patient had noticed the appearance of a growth at the base of his tongue, behind the circumvallate papillæ. Its growth had been very rapid, so that in a few days it had filled the patient's mouth to the roof with its long tendrils or lashes, which had given it the appearance of a certain sea-weed. Its growth had been attended much of the time by intense pain in the tongue and throat. It was evidently of fungous origin, being without sensitiveness when touched, although the surrounding parts had been so sensitive that the patient had been unable to swallow.

There were no descriptions in the hooks corresponding to such a growth. There had been no difficulty in disposing of the invading cells or spores, whatever their nature had been. The body of the growth had first been amputated and its site of attachment thoroughly scraped with a sharp curette. The lashes referred to, of which the growth was composed, were blackish or brown in color. The patient had been unable to tear them away with his fingers, such was their toughness, and also the pain so produced in the base of the tongue.

Dr. GOODWILLIE thought the growth papillary in character. Such growths appeared very often on the palate, and were sometimes half to three fourths of an inch long.

A New Caustic Loop for Lateral Pharyngitis.—Dr. GLEITSMANN exhibited a new instrument for the destruction of granular tissue in the pharynx behind the posterior pillar of the fauces. It consisted of an electrode armed with a wire loop of a composite metal (iridium and platinum), through which the current of a galvanic battery was to pass. This metal had the advantage of being more elastic than platinum, so that when

crowded through the narrow faucial opening it afterward regained its elliptical shape.

Some operators applied chromic acid, and even sulphuric acid, in the treatment of this condition. It had the advantage of being much more expeditious than Jarvis's snare. Jarvis himself had said that fully half an hour should be occupied in cutting through the hypertrophic granulations of the pharynx. With this instrument a patch or successive patches of the hypertrophied tissue could be burned away to just such an extent as the case might demand. This could also be done without risk of doing damage to the pillars.

A New Nasal Electrode.—Dr. GLEITSMANN also exhibited an electrode designed to facilitate the application of the faradaic current in the nose, naso-pharynx, or larynx. The faradaic current was of peculiar service in allaying a cough due to an irritation of a branch of the trifacial nerve acting reflexly, and therefore called the trigeminal cough. The instrument was made by Tiemann & Co., and the price was only fifty cents.

A New Nasal Forceps.—Dr. GLEITSMANN also exhibited a forceps especially designed for the extraction of pieces of bone from the nose after the soft parts had been cut away. It had great strength of bite, as could be seen by trying it on the finger-nail. It was adapted for entering a very small space and there exerting great force.

Deafness as a Result of Nasal and Dental Diseases.—Dr. GOODWILLIE then read the paper of the evening. (See p. 205.)

Dr. SMITH remarked that any disease affecting the posterior nares might spread to the middle ear, especially in syphilitic disease where the palate was adherent to the posterior wall of the pharynx. He was prepared to believe that an irritation starting in a decayed tooth might act in the same way. He could scarcely see how a vapor could be passed into the middle ear against the air pressure which an injection of the Eustachian tube must at once set up in its cavity. If an opening through the tympanum existed, it might be possible to start an air current through it, but, considering the small caliber of the Eustachian tube, he hardly saw how a vapor could be pressed through its length into the middle ear. At least considerable compression would be necessary.

Dr. ROBINSON said he was glad to have the question raised at this time of the aural complications of nasal disorders. It had always seemed to him an unfortunate fact that the ear and eye were so closely connected together in the public mind when thinking of a state of disease in either. It was possible for a man well acquainted with the treatment or diagnosis of affections of the eye to know little or nothing of those of the ear, and *vice versa*. He was convinced that the amount of trouble in the ear that could not be traced to nasal conditions antecedent was very small. Fully eight tenths of the cases coming to be treated for aural affections were of troubles really depending for their origin on inflammatory or septic conditions in the nose or throat. Here neither an oculist nor an aurist was the proper one to carry out the treatment needed to restore the bearing, but a laryngologist. Diseases of the middle ear caused most of the affections of hearing, according to the late Dr. Agnew, and certainly most of these were due to pharyngeal disorders.

He had often noticed a general opinion in the profession that obstructive diseases of the upper air-passages were more frequently followed by aural difficulties than the atrophic affections of these same areas of mucous membrane, whereas it was, as a fact, just the other way. Before he had recognized the true relation here he had often been surprised to have people come to him for the treatment of obstructive diseases of the nasal passages in whom he found no ear trouble, either subjective or objective. It was really hard to say how far naso-pharyngeal diseases directly caused aural disorders, since often

the two seemed to begin and progress simultaneously. At the same time he should say it was always in order to get rid of obstructive diseases of the nose, even if not sure that by so doing we could cure or prevent aural disease. He was opposed to the use of douches in the naso-pharyngeal space in the treatment of obstructive disorders, not on account of their tending to bring about aural affections, but because they directly increased the amount of the discharges. With regard to atrophic diseases, he believed that there was no form of local treatment which did more than prevent an otherwise more rapid march of the disease.

Some patients were seen only after the aural catarrh had gone on for years, and these patients were often unaware of their deafness, or else unwilling to admit it to themselves. The chances of success in treatment was in such cases much lessened or entirely destroyed by this delay in beginning it.

Another matter which he had come to have a very strong conviction about was that, in both the hypertrophic and the atrophic forms of nasal catarrh, a great deal of benefit was to be derived from the use of some modifying agent, and by far the best one he had ever used was the compound tincture of iodine of our pharmacopœia. Its application sometimes seemed to bring about a better condition in the form of hypertrophy, accompanied by gland atrophy even. He did not believe it necessary to the integrity of the aural apparatus that air should pass through the nasal chambers; we saw too many cases where the hearing was good in spite of nasal obstruction.

A very convenient substance to use as a menstruum in applying drugs in the nasal chambers was the cosmoline oil, so called. It was fluid at ordinary temperatures, and so the trouble of heating the reservoir or spray-tube was done away with. He used it in combination with a small amount of carbolic acid. At the same time it must not be forgotten that no chronic nasal, aural, or throat disease could be cured by any local plan of treatment. General constitutional building up by diet, climate, exercise, etc., must in these cases be chiefly looked to for lasting relief.

Dr. WEBSTER spoke of a class of patients that came under his notice quite frequently, who had had deafness coming on a long time, it being due to a slowly developed and chronic aural catarrh. He believed that when that condition was reached—and it was usually accompanied by an atrophic condition of the mucous membrane in the nose and pharynx, a fact which furnished its own suggestion—very little could be done for the local condition by local treatment. He advised these patients in regard to the functions of the skin, exercise, a change of climate and occupation, diet, and all other measures acting on the general health. In regard to the ætiology of diseases of the ear, he was in full accord with the opinion that had been given to the effect that they were almost always due to wrong conditions in the throat, and only very rarely occurred as idiopathic affections. However, he was surprised to hear Dr. Robinson say that the aural affection came *pari passu* with the nasal, or that we were unable to infer that it might not. Against this view he would oppose the well-known fact that an irritation of the posterior nares would produce inflammation of the middle ear, as where acute otitis media succeeded within a day an operation for the removal of a polypus. There could be no doubt here that an inflammation set up by the operation traveled along the Eustachian tube and produced an acute inflammation of the drum of the ear.

As to the question raised whether obstructive or atrophic diseases of the nasal passages were most apt to produce otitis media, he had always supposed that the aural disease began during the obstructive stage of the catarrhal disorder in the nose. All atrophic inflammations were at first hypertrophic.

The patient came to us for the aural trouble long after the hypertrophic stage had been succeeded by the atrophic. Although he had heard much about otitis media being due to dental diseases, he had never seen a case of this sort. He had, however, seen many instances where otalgia accompanied caries in a tooth, and where, at the same time, no other cause for it could be found.

Dr. O. D. POMEROY said he could not believe that disorders in the teeth caused ear troubles of any inflammatory sort. He agreed with Dr. Webster that carious teeth often caused otalgia, but never otitis. There was no reason why inflammation in the ear should follow an affection in a tooth. He had certainly never met with an instance where such a connection showed itself, but the secondary otalgia was common enough. In fact, the only other causes ordinarily met with of pain of a neuralgic sort in the ear were malarial poisoning or some obscure affection of the fifth nerve in that branch of it connecting with the ear.

There was one heresy of belief in many medical and other minds which he should like to explode, and that related to a supposed causative connection between the first dentition and suppurative otitis media. Because they might at times or even often occur together seemed to him a begging of the question, if we gave that as a reason for holding this belief. The chief cause of suppurative otitis media in children of all ages (obtaining in nine tenths of all cases) came in the shape of a throat disorder, especially of some infectious sort.

He was very glad to find himself seconded by Dr. Goodwillie in the matter of the uselessness of the aural douche. He had held this belief for five years past, and it had grown stronger with each year. Enough douching, as a fact, might itself cause chronic otitis media. The use of peroxide of hydrogen in the way described by Dr. Goodwillie he could heartily indorse. The liquid should be really charged with the gas to do effective work. To have it "live" it needed to be kept under pressure in a siphon, just as carbonated waters were prevented from losing their charge of gas. Dr. Goodwillie had called attention rather strongly to a danger he supposed to exist—that in using the Eustachian catheter, unless special precautions were taken (such as wiping out its outlet with a piece of cotton on a probe), foul air might be blown into the Eustachian canal. He did not believe there was any such danger, or that these special precautions were called for in any way. Then, as to the theory that the Eustachian tube was opened and shut in just such a way by the motions of swallowing, etc., he did not think we had definite knowledge on this point; neither could we, in his opinion, determine, from an inspection of the outlet, whether enough air or not was entering the canal. To get a real proof of this canal being patent or not a very simple expedient would suffice, namely, to inflate the cavity of the middle ear and observe whether hearing was thereby much improved. Most practitioners paid too little attention to the condition of the Eustachian tube. Inspection would not tell what it was either, but inflation would do this. We should find, in case of much swelling of the walls of the canal being present, that an excess of air would not empty itself from the tympanic cavity.

With regard to what had been said respecting a connection between obstructed nostrils and ear affections, in his opinion good nasal respiration was of importance, not because it favored the keeping up of a supply of air in the tympanic cavity so much as because the parts were thus kept free from accumulations of the secretions. He thought any apparatus for making applications of spray to the Eustachian tube by which air was withdrawn violently or forced in was almost certain to injure the ear.

Dr. CURTIS said he had treated five hundred cases of deflected

septum and had been much struck on observing a relief from tinnitus aurium and otitis media in a large number of these patients after the restitution of the nasal passages to their natural caliber and so insuring a supply of air to the Eustachian tube. Moreover, an abundance of air should pass through the inferior meatus; a supply passing through the middle meatus, in other words, would not answer. The relief of nasal obstructions not only had the effect just mentioned of relieving tinnitus and otitis media, but caused an increase of body weight and of general constitutional vigor, as in many instances where he had operated for deflection of the septum. In the case of one patient the amount of oxygen in the blood had increased after such an operation from six and a half to thirteen per cent. Nothing could indicate more clearly than did this the systemic improvement brought about.

Dr. W. A. DAYTON said he could not agree with Dr. Robinson that we did not meet with aural disease to any great extent when the nostrils were closed. He was also opposed to the inflation of the tympanic cavity with a spray of vasoline, if that indeed was possible to do. Once inside, it had no means of escape, and, having no great power of remaining aseptic, would cause suppurative inflammation.

Dr. ROBINSON said he must still hold to the view that bad aural troubles depended rather on the presence of an atrophic than a hypertrophic condition in the naso-pharynx. They occurred in either case, but the percentage of bad cases of aural disease was much greater in the former. He knew it was an opinion generally received that obstructive troubles in the naso-pharynx were generally followed by aural disorders as a result. Obstructive troubles might and often did exist together with good hearing, and so when disorders were present in both of these regions at the same time it was difficult to prove that the naso-pharyngeal troubles were the cause of the aural. We had to be content with the fact that in certain cases they went together.

Dr. GOODWILLIE said, in reply to the remarks made in reference to the entrance of vapor of vasoline into the tympanic cavity, that the purpose of the vaseline vapor was to carry an antiseptic or any medicinal agent into the Eustachian tube where it was wanted; he had never seen any results which contra-indicated the use of the method as he had placed it before them. In the treatment of naso-pharyngeal affections he made little use of sprays, preferring, as he did, impalpable medicated powders as indicated in each case.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Meeting of May 27, 1889.

The President, Dr. ALEXANDER S. HUNTER, in the Chair.

The Therapeutics of Rheumatism in Infants and Children.—Dr. A. JACOBI, in a paper with this title, opened by calling attention to the frequency with which rheumatism occurred in children and infants. Valvular affections of the left side of the heart were usually secondary to rheumatism, and not to scarlatina. Many cases of rheumatism in children did not develop cardiac symptoms; but, on the other hand, endocarditis was sometimes the first symptom of rheumatism, even in mild cases; the two facts contrasted strongly and must be borne in mind. The slightest symptom of chorea minor should lead to an examination of both heart and joints. Chorea minor due to a rheumatic affection of the spinal membranes might be, not the final, but the earliest symptom of rheumatism and rheumatic endocarditis. "Dentition," "malaria," "worms," or "colds" were too often the diagnoses given in cases of rheumatism in children. This was partly because an idea of the rare occur-

rence of the disease in children was rooted in the minds of many practitioners, and partly because diagnosis was sometimes quite difficult. Fever in small children was a common symptom, but every disturbance in a child was apt to raise the temperature. The elevation of temperature in rheumatism might be slight and irregular. Swelling of the joints was apt to be trifling in amount and easily overlooked; and the pain (spontaneous or on pressure) might be much less severe than pains due to fatigue, rachitis, syphilis, eczema, or otitis. In every doubtful case, where a child showed signs of discomfort, safety required that the heart and joints should be examined. Diagnosis was especially hard if only a single joint, such as the hip or knee, was affected. Other joints might become involved subsequently. But too often such a condition in a young child, requiring really careful and repeated examinations to determine correctly, was almost disregarded by the physician, and the mother was assured that the child's uneasiness was caused by "growing pains." He would emphasize the fact that in a large majority of cases the so-called "growing pain" indicated the presence of rheumatism and the liability to irreparable heart injuries.

As regarded treatment, a change of residence from localities in which rheumatism was apparently endemic was often desirable. Alkalies were often indicated. Cold and moist weather, damp houses, etc., frequently brought on rheumatism in the children of rheumatic parents, and in such children treatment must be mainly preventive. The systematic use of cold water would modify, and sometimes entirely remove, such a tendency. A cold wash, sponge, wet sheet, shower-bath, or bath (according to the child's strength or power of reaction) should be given daily. If in any case this was followed by chilliness, then tepid water containing alcohol might be used at first. Warm clothing should always be worn for the remainder of the day after any cold-water application. Among the various local measures mentioned for the relief of swollen and painful joints, the speaker called especial attention to swathing of the part in cotton and flannel, and to the application twice daily of a solution of iodoform in collodion, brushed copiously over the swollen surface. For endocarditis, absolute rest, cold applications over the heart, and salicylate of sodium were to be recommended.

After referring to gonorrhœal articular rheumatism, nodulated rheumatism (*i. e.*, the appearance of small neoplasms on tendinous and periosteal structures), and peliosis rheumatica (a localized form of purpura), which were occasionally met with and required no special treatment in children, the speaker considered muscular rheumatism. In this form also the best preventive treatment, when a tendency to the affection had appeared, was the regular and systematic use of cold water. In certain cases the injection of a small dose of morphine, the use of the interrupted current, the administration of the salicylate, antipyrine, acetanilide, or phenacetine, and a few subcutaneous doses of one twelfth of a grain of pilocarpine, had given relief. Where a real inflammation was present in a muscle, warm baths, a mild continued current, and small doses of the bichloride of mercury would aid in recovery.

Dr. W. H. THOMSON said that many years ago his attention had been drawn to the ætiology of rheumatism, he being then a medical student in Syria, and hearing from his father (then engaged in explorations) what seemed to him paradoxical statements relative to the prevalence of rheumatism among the Arabs of the desert. He had heard that acute rheumatism was as common a disease among the Arabs in the arid country south of Palestine as among the fishermen of Norway and Scotland. He had asked himself then and since what reason there should be for the appearance of a disease either identical or similar among peoples living under apparently opposite conditions of life, in

respect to weather—that is, in climates presenting the extremes of warmth and dryness and a never-clouded sky on the one hand, and incessant fog, rain, and chilly winds on the other hand. He had become satisfied that the cause of rheumatism in either case must be a common one, but not the same as the cause of gout, for gout was nowhere to be met with in Mohammedan countries, unless in the few sections where alcohol was used (as in parts of India, where a drink made from fermented rice was drunk); at least it was very rare. It was safe to premise that rheumatism, so far as climate was concerned in its causation, was connected with changes in temperature, while gout was the outcome of excesses in the diet and in the use of fermented liquors. What, then, was there in common in the conditions of life of a man living in a tent in a burning climate, never having enough water, and a fisherman on the shore of the Baltic drenched with water most of the time? He would answer, Chilling of the skin when moist. This might occur as well in the deserts of Syria as in lands covered with fog half the year round. In the desert there was great heat during the day, the sand became heated as if in an oven, and when a party of travelers lay down to sleep, some time after sundown, on this warm sand, they were in a profuse perspiration, and naturally provided themselves with little in the way of coverings. But the sand radiated its heat very rapidly into the cloudless sky, and before sunrise bitter cold would succeed to the heat of the evening. Consequently the wet skins of the uncovered sleepers became badly chilled; and that rheumatism should follow such exposure was most natural. He had heard his father say that he had never suffered more from cold than just before dawn at the base of Mount Sinai.

No one should attempt to diagnosticate the early stage of rheumatism by an examination of its articular habitat, a joint. A swelling in a joint might be due to gout, trauma, gonorrhœa, or rheumatism; the symptoms in the joint were the same in each case, and so many mistakes were made. Examine the pulse, and no one familiar with the contrast presented by rheumatism and gout in this respect should fail to determine whether it was rheumatism which the patient had in the joint, or gout affecting the heart and arteries. In scarlatinal rheumatism the pulse was often hard, and there was often much uric acid present in the blood and urine; sometimes there was a formation of pus and true textural changes, which were absent in simple rheumatism, and often pyæmia was developed.

He was inclined to believe in the existence of some yet unknown function of the skin connected with respiration in its widest sense; he thought that a failure of skin-action of some sort was a means of causing the accumulation in the body of the matters which were morbid of rheumatism. Quinsy and acute articular rheumatism were sometimes associated, the latter following the appearance of the former. In the genesis of rheumatism there was usually a chilling of the skin, so naturally the warm bath acted as an anæsthetic; moreover, any bath rendered the urine alkaline—even a vinegar bath. Flannel had a peculiar usefulness from first to last. Oily inunctions, and especially inunctions of cod-liver oil, were advisable for the same reasons. This oil had first been introduced as a remedy for chronic rheumatism, and he himself placed great reliance on its effects, both externally and internally.

As to the connection between rheumatism and endocarditis in children, he fully concurred in Dr. Jacobi's warning lest it be overlooked. Endocarditis, he wished to state emphatically, might occur with only the most insignificant indications of rheumatism. He had recently seen a fine boy suffering from only a moderate attack of arthritis with the temperature between 99° and 100°, or else normal; the disease had been contracted by sitting on the ground while watching a game of ball.

In spite of all he could do, endocarditis had come on in thirty-six hours, and it would probably leave him with a permanently crippled heart.

To prevent injuries to the heart in children, contracted in this way, we must be on the lookout for the preceding rheumatism, and especially if chorea appeared, which was the normal order in the development of rheumatism in children, the articular affection coming subsequently. He dreaded "growing pains," and put a child on the use of cod-liver oil at once when they were complained of. As prophylactic measures he would advise the application of suitable oils to the skin and the wearing of flannel both summer and winter.

As regarded the therapeutics proper to a case of endocarditis, he had no faith in the power of salicylic acid, either in treatment or prevention; it was useful in articular disorders, not where the heart was involved. Antipyrine or phenacetine was preferable.

But, it might be asked, Why should the heart have this peculiar liability to develop severe lesions during an attack of rheumatism? When rheumatism invaded other parts and structures in the body it did not produce such injuries, or anything like as severe ones. If we found a joint in a state of redness, pain, and swelling such as rheumatism produced, we should say the prognosis was bad unless the attack proved to be rheumatic, for in that case the symptoms would pass away. If such a joint was examined just after death, it presented few indications, or perhaps none whatever, of the inflammatory process recently so active in it, whereas the heart did present permanent structural lesions. The explanation of this difference could be derived from a consideration of the unresting nature of the heart, and the necessarily intensified action of the rheumatic poison on the wall of a serous cavity subjected to such constant mechanical strain. If a man having rheumatism in his knee should kick a hundred and forty times in a minute, he would probably cause the development of structural changes which would remain for life; consequently, the importance of compelling the heart to beat slowly. In children the heart-beat was much more rapid than in adults; and, correspondingly, heart complications in rheumatism were more likely to be developed. He therefore recommended full doses of aconite, and not of digitalis. Aconite allayed the irritability of the heart; also alkalies were to be given; and finally the utmost care exercised to protect the chest, so that no chilling of the sensitive cutaneous nerves should occur; especially should the chest area overlying the heart never be bared of covering.

Dr. J. LEWIS SMITH remarked that in thirty years of practice he had seen many cases of acute rheumatism in children. For fifteen years he had kept a record of the cases met with in the outdoor department of Bellevue Hospital, in which rheumatism was developed in patients under fifteen years of age. In seventy-eight of these cases there had been a cardiac bruit. As regarded age, he had not met with a single case where the patient was under one year old, and very few where the age was less than two years. In these very young patients there had been little swelling, but some tenderness in the joints. In most instances the disease in children commenced in the lower extremities—a matter of surprise to him—and tended, more or less, to travel upward. He agreed with previous speakers that in most instances the local manifestations were much less pronounced than in adults. There were many walking cases in children under ten years of age.

As regarded "growing pains," often, after finding a cardiac bruit in a child, and questioning the mother if it had not suffered from rheumatism in the past, he had been answered that the father or the mother was subject to the disease, and that a few months previously the child had had "growing pains." It

would be well to teach the laity that there was always a pathological condition behind "growing pains," and that by calling in a physician as soon as they were complained of, endocarditis and possible injury for life might be prevented. Sometimes œdema was the first pathological indication to attract attention, a swelling of the feet, shortness of breathing, and perhaps a hacking cough, being noticed before the other symptoms appeared. In one instance a child of twelve years had been brought to him suffering from lividity and coldness in the right hand and the left leg. He had soon been able to determine that the child had had a severe attack of rheumatism, and that evidently a deposit of fibrin had formed in the heart, emboli from which had lodged in the brachial and femoral arteries. The pains suffered from and the bruit were to be looked to for a diagnosis of endocarditis in children; the rheumatism which had caused it might have been latent. The heart would become enlarged after the disease had lasted more than a year. Quite often, in children, the pulse would be very rapid, showing the difficulty with which the heart was pumping the blood; for the same reason the enlargement took place.

He agreed with Dr. Jacobi that rheumatism was often the cause underlying the development of chorea minor. In one hundred and sixty-five cases of chorea minor of which he had kept a record, only eighteen had been due to rheumatism.

As to treatment, he had found the salicylate of sodium of great value if used early. He gave it internally, and also packed it around the affected joint.

Dr. H. D. CHAPIN remarked that while it was now recognized that rheumatism was a common disease in children, it was often difficult of diagnosis. There was no pathognomonic symptom, and we must depend on recognizing the composite picture of the disease. Wandering pains, endocarditis, hydræmia, and chorea were manifestations of one and the same condition. They might be met with together instead of following each other. If we paid attention to pain in a limb or joint without looking further, it would be necessary to remember that not all pains were due to rheumatism. Bruises may have been received which gave no external signs; and, still more commonly, pain was due merely to muscular weariness, and especially soreness in the joints, following play. When rheumatism was present, it was even more apt to cause pain in the morning than in the evening, while pain due to the child's being tired would not, of course, be complained of in the morning. Heredity should always be given much weight.

Children having endocarditis were commonly allowed to get up too soon. He agreed with preceding speakers as to the importance of complete rest in the treatment of the affection. In fifteen or twenty out of sixty cases that he had met with, tonsillitis had appeared either before or after the rheumatic trouble. The causes of rheumatism seemed to be acidity in the stomach and bowels, derangement of the hepatic function, and a checking of the activity of the skin; in treating it, therefore, each of these factors should be kept in mind. Hot alkaline baths, a careful diet, and iron internally would often prevent the recurrence of the attack.

Dr. A. SEIBERT thought rheumatism in children a disease due to infection quite as much as to heredity. He had seen it develop in young children whose parents had never suffered from it, but were attacked some time after their children. This had always occurred in families living in damp and dirty dwellings. Its infectious origin explained those cases in which endocarditis appeared before either a joint affection or chorea. He placed the disease in the same category with fibrous pneumonia, meningitis, and diphtheria; statistics had shown that it was most frequent in the same houses as the latter. He did not believe the mere chilling of the surface of the body could give

rise to all the complications which attended rheumatism in children; and, moreover, young children were kept quite carefully indoors in bad weather, and did not get exposed to cold and wet or chilling of the surface.

Dr. J. C. PETERS replied to this that the houses of the poor were but too commonly damp and cold, and that children were very often the leading sufferers from this, owing to the carelessness of their mothers about their under-clothes. In most of the cases he had met with it had been necessary to order better under-garments. In treatment he had found lithia (as distinguished from lithia water) of considerable value.

Dr. A. CAILLÉ took much the same view as Dr. Seibert, believing the disease infectious, and hoping that in the new era of medical chemistry now appearing some substance would be found which would combat the poison of the disease.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN NEUROLOGY.

Meeting of May 10, 1889.

Dr. L. C. GRAY in the Chair.

Localization of Lesions of the Great Nerve Plexuses.—

Dr. C. K. MILLS, of Philadelphia, by invitation, read a paper with this title, dealing particularly with lesions of the lumbosacral and brachial plexuses. He referred to gross lesions (not neuralgias, etc.), such as would result from neuritis, neuromata, aneurysms, abscesses, etc., and might occur in or adjoining any nerve plexus; also to lesions of special causation in the sacral plexus due to rectal or uterine disorders, or to a partial dislocation of the hip joint. In the case of the brachial plexus, also, a dislocation at the shoulder might act in this way. Considering first lesions of the sacral plexus, the speaker remarked that he had met with two cases in which pains and disturbances of motion or sensation were caused by intrapelvic growths making pressure on this plexus, and three or four similar cases where the symptoms were due to psoas abscess. Several of these patients had till then been treated for sciatica. Pelvic cellulitis might give rise to the same symptoms in either male or female patients. One form of puerperal paralysis was probably due to pressure on the sacral plexus incidental to a prolonged labor or the use of instruments. In one of his cases galvanism, massage, antilithic remedies, and ovariectomy, employed in succession, had failed to relieve symptoms which had finally been found due to injuries of the plexus received in childbirth. In another case pain and soreness deep in the pelvis had persisted for years after the birth of the last child, and were at last traced to a neuritis in the roots of the sciatic nerve. Such a condition as the last (neuritis) could be discovered by passing a finger (in the rectum) over the surface of the pyriformis muscle, where it escaped through the obturator foramen, till the nerve strands were palpated. In most cases, symptoms arising from lesions of the plexuses were unilateral. Large compressing lesions gave symptoms much resembling those due to lesions of the cauda equina—that is, pain, anæsthesia, analgesia, anæsthesia of the bladder and rectum, atrophy of parts below the knee, sweating, and vaso-motor disturbances. These ordinarily were bilateral or partly so.

A diagnosis as to the particular strands of the plexus involved could often be made by a study of sensory projection in nerves known to supply certain limited areas—such as the dorsum of the foot, the back of the thigh, the inner side of the middle toe, etc. The course taken by the ball in the case of President Garfield might possibly have been determined in this way. Still, as the symptoms were bilateral, there may have been in addition a spinal concussion, or extravasation paralysis, thus

giving a double set of nerve lesions, partly spinal (corresponding to where a vertebral body was penetrated) and partly such as would arise from a lesion of the lumbo-sacral nerve.

Considering next lesions of the brachial plexus, here neuritis, neuromata, tumors, and traumatic injuries were to be taken into account. In many of the cases presenting, no possible cerebral or spinal paralysis was to be differentiated. The strand of this plexus affected could often be determined by attention to the muscles and cutaneous areas in the arm supplied from it. The condition of the pupil might, in certain cases, throw light on the problem, since there was a connection between one certain strand of the plexus and the sympathetic nerve. Pain was often projected, and, by studying segmental localization, a diagnosis could be made. Sometimes surgical interference could be guided so as to bring about entire relief. Demarquet had recorded such an instance, and Dr. C. K. Briddon another. The day previous he had himself seen a case in which he could locate in the brachial plexus the lesion giving rise to the symptoms.

Dr. C. L. DANA said that, according to his experience, and especially the studies made by him in two cases operated on by Dr. Abbe, the distribution of given cervical nerves to various muscles was very wide, and a given muscle received its innervation from a number of different nerve strands. The courses of the nerve supply for sensation had been found still more various. Consequently, the distribution of anæsthesia could not point very definitely to lesions of nerves at a point just outside the cord.

Dr. W. M. LESZYNSKY instanced a case in which a diagnosis had been made by Dr. Mills's method of segmental localization.

Dr. M. A. STARR thought the paper opened up a subject which was not yet fully worked out. He had seen several very obscure cases in which it had been impossible to separate the probability of the existence of a lesion high in the lumbar plexus from that of a lesion of the cord at an adjoining point. There were some points in Dr. Mills's paper which would aid in a working out of this intricate matter. To the proposition that sensations were delayed in lesions of the cord, but not in those of the nerves, he must object. Arsenic and alcohol gave rise to peripheral paralyses in which sometimes sensation was much delayed. In his experience, severe pain about the perinæum and post-sacral region was regularly due to a lesion in the cord.

Dr. DEEVER, of Philadelphia, present by invitation, thought that in many cases in which pain returned or became even worse after an ovariectomy, there was probably a lesion of the sacral plexus. In undertaking operative treatment for such lesions, access to the pelvis might be obtained by trephining the pelvis laterally or posteriorly, by going through the sacro-sciatic notch, or perhaps by a laparotomy.

A Case of Spinal Resection for Fracture causing Paraplegia.—Dr. R. H. M. DAWBARN read an account of such an operation. (See vol. xlix, p. 711.)

Dr. DEEVER instanced a case in which the patient had been operated on by a colleague of his immediately after reaction set in (subsequent to the receipt of the injury). The condition of the patient had been improved very little, if at all, showing that the damage had already been done at the time of the operation, and that the process of degeneration had begun. It was the opinion of Dr. Agnew, of Philadelphia, and of others, that the injury was done at the time of the accident, in most of these cases where fractured vertebræ were displaced so as to make pressure on the cord. Still, an operation such as Dr. Dawbarn's did not make the condition of the patient worse; it might, on the other hand, improve it, and was safe.

Dr. DANA remarked that he knew of four cases where such an operation had been done—all within the nineteen months

previous. One of these patients had been much improved, and three slightly benefited. He would also call attention to Dr. Abbe's method of reaching the spinal canal by making a flap; primary union was obtained and the operation was short—much less time than the three hours used by Dr. Dawbarn being required. He had quite recently preserved a spinal column and cord showing a condition which operation would have helped, at least so as to have prolonged life.

Dr. STARR instanced a case of Brown-Séquard's paralysis which had recently come under his notice. The patient, when trying to stop a sled on which he was descending a hill, by putting down his heels into the snow ahead of the sled, had been thrown up into the air, and had fallen on his back. He had been unable to rise, having suffered from the first with total motor paralysis in the left leg and partial paralysis in the right leg. An operation had been done, the eighth, ninth, and tenth spinous processes having been removed. The hæmorrhage had been severe, and in this respect Dr. Dawbarn's operation had much merit. A callus was found which had been making a unilateral pressure on the cord, and was removed. Some improvement had followed, and still, after five weeks, the patient's actual condition was not materially altered, although the wound had healed perfectly. He thought we could not hope for much improvement in operating after such accidents to relieve a paralysis. When the growth of a tumor made a gradually increasing pressure on the cord, its fibers were forced apart rather than severed, and there the excision of the tumor might give entire relief. But where the fibers were ruptured, as in traumatic injuries they were apt to be, we could not expect them to become reunited.

Dr. S. T. ARMSTRONG, of the United States Marine-Hospital Service, instanced one case where paralysis following a traumatic injury to the spine had led the surgeon in charge to operate for the relief of a supposed compression. Soon afterward gangrenous spots had appeared in different parts of the body, and the man had died from infection following the operation. In another case a seaman had fallen into the hold of the ship on to his back, and became at once paralyzed in his lower extremities. No operation had been attempted, owing to the sinking condition of the patient, but the necropsy had shown degenerative changes in the cord such that any operation would have been futile. He thought the present record of operations of this sort was not good enough to warrant the surgeon in undertaking such an operation as a matter of course, or with the expectation of obtaining an improved condition.

The CHAIRMAN remarked that the spinal cord would endure considerable injury such as came from a vertebral dislocation and still recover its continuity of outline and its normal functions, especially if time enough were allowed it. This might be looked for even when the dislocation had lasted for a considerable time. In Pott's disease the cord often withstood much pressure without permanent injury. The important sign was the appearance of muscular atrophy. If the muscles had become much atrophied there was not much hope of getting relief by an operation. In traumatic myelitis no great amount of recovery should be looked for after a successful operation in the first few months, but in the course of six or seven months these patients might perhaps do better than at first seemed probable.

Dr. DAWBARN replied to Dr. Dana that Dr. Abbe's cases had been of a non-traumatic sort—one of tumor and one of neuritis. The long duration of the operation, of which he had read an account, had been due to the unexpected wide deviation of the eleventh spine toward the left, and to adhesions between the theca and the bones. Experiments on a number of cadavers had shown that ordinarily the operation could be done very rapidly. To what Dr. Armstrong had said as to the futility of

the operation, he would reply that we only hoped for a cure, while if we succeeded simply in improving the patient's symptoms the operation was justifiable.

An Hallucination Peculiar to Chronic Alcoholism.—Dr. M. D. FIELD, of the Blackwell's Island Insane Asylum, read a paper giving an account of ten cases of this sort. The symptom was one he had seen only in these ten cases, all of alcoholic dementia. A patient presenting it, while he had perfect knowledge of his surroundings and his own relation to them—knew that he was confined in an asylum and how long he had resided there—would nevertheless tell his attendants in the most circumstantial manner that on the previous day he had been away from the building, and would describe where he had gone and what he had seen. He would seem unconscious that there was anything improbable in his narrative, and, if questioned, would assure one that he had often before been on such excursions. Some who gave these accounts were confirmed cripples, yet had this delirium of having recently taken a long walk. One patient, for instance, suffering from a double peripheral neuritis and from phthisis, would always, if asked if he had walked out the day before, answer that he had made several miles. At one moment such a patient realized that he had not left the hospital in months; in the next he assured any one conversing with him of his trip, and described it. This curious mental aberration was common to men and women, and to all ages and grades of life. The particular sort of liquor the patient had been addicted to had no relation here. He would here remark that a majority of the cases of alcoholic insanity which came into Bellevue Hospital were the result of drinking what was known as mixed ale, and not of indulgence in the stronger liquors.

Reports on the Progress of Medicine.

ELECTRO-THERAPEUTICS.

By G. G. VAN SCHAICK, M. D.

Electricity in the Diagnosis between Certain Cases of Hysteria and Epilepsy.—Dr. A. Didier ("Lyon médical," No. 49) presents a careful study of the effects of faradaic electrization as a diagnostic means, in certain difficult cases, between hysterical attacks and epileptic seizures. According to the author, faradism is by far the best agent at our disposal for the purpose of arresting the hysterical crisis, or of preventing it, and he cites a number of cases which serve well to substantiate his statements. For diagnostic purposes it enables one to distinguish between epileptics and patients suffering from hysteria, whether epileptoid or convulsive (Charcot), inasmuch as in the first the attack is not modified by this sort of treatment, whereas it is checked in the latter. His method of treatment consists in the application of electrodes along the course of the aura, using a faradaic current of fair intensity. Not only does he assert that faradism possesses a markedly abortive effect on the attacks, but he has also observed a decidedly curative action upon the disease itself.

On the Treatment of Uterine Tumors by Electricity.—Since Apostoli first brought out his statistics of patients treated and cured or materially improved by his method, a profuse amount of literature has appeared on the subject. For the last few months, however, we do not hear quite as much about the matter. It would seem as if the devotees of the method were quietly working up both its technique and its statistics, while its detractors were either informing themselves about a procedure which they commonly decried without the slightest personal knowledge thereof, or had made up their minds to allow time, the best judge, to decide upon the merit or the worthlessness of the method.

The statements of Dr. Thomas Keith, one of Apostoli's strongest supporters, as well as a peerless hysterectomist, are of great interest.

After speaking ("British Medical Journal," June 8th) of the other methods of treatment, including the old idea of using the interrupted current with large needles, now fortunately abandoned, he uses the following strong words: "The only treatment (not surgical) worth speaking about that I have seen do any good, and which, at the same time, is free from danger to life if the treatment be undertaken by one who has respect for a strong electrical current, is that brought before us by Dr. Apostoli. If any one should have held on firmly to hysterectomy it is myself, as my results after it are better than those of any other." Dr. Keith further states, in regard to the first two patients upon whom he tried electricity, that "the results got in these two first attempts convinced me of the value of this treatment, and I ceased thenceforth from doing hysterectomy, or even removing the ovaries for bleeding fibroids."

Dr. James H. Aveling, in reference to the same subject, takes the moderate view, which is the one commonly held, as we believe, by investigators into Apostoli's method. In the "British Medical Journal" for May 25th he states that all that his present experience will justify him in vouching for the efficacy of this method of treatment is that in some cases it will cause a fibroid tumor of the uterus to entirely disappear, that in others it will remove it partially, and that in most cases the symptoms which have caused the patient to seek assistance may be relieved or quite cured. In support of this statement he relates four cases treated by electricity with very gratifying results.

The Treatment of Cancer by Electricity.—Dr. Parsons ("British Medical Journal," April 27, 1889), believing that cancer cells are natural tissue cells which have taken on an abnormally active growth from some stimulating cause, but over which the nervous system has in some manner lost its control, has applied electricity in four cases of cancer, which were either too far advanced for a cutting operation or in whom the patient had refused to submit to one. The destruction of healthy tissue is, of course, bound to take place equally with that of the neoplasm, but the former has a recuperative power not possessed by the latter. Hence he argues that the electricity may injure the cancer cells beyond recovery, while the normal tissue may easily regain its pristine healthy state. The vascular supply of cancer being so great, no such general and dangerous sloughing occurs such as would take place in uterine fibromata by the use of the interrupted current. This current was the one he employed in his four cases, under anesthesia, by transfixing the tumor and all the tissues immediately surrounding it with fine needles, so as not to injure the skin. The current was at first of ten milliampères, which was then increased and flashed through the tumor from fifty to a hundred times. The tumors shrank and became harder, while the pain was lessened and the general health improved.

The Treatment of Tumors by Electricity.—M. Darin (*Id.*, May 11, 1889) considers that the treatment of tumors by electrolysis is applicable under the following conditions: 1. When no other treatment is practicable. 2. When electrolysis offers advantages which the numerous surgical methods do not possess. 3. When the patient refuses to submit to surgical treatment. He has employed electrolysis with entire success in a large cancer of the left breast in a woman aged seventy-four; in a case of scirrhous of the right breast, with enlarged glands in the axilla; in a cancer, of the size of an orange, which appeared in the axilla after being twice extirpated from the corresponding breast; in a hydrocele which had lasted fifteen years; in a case of prepatellar hygroma; in a wart upon the cheek which had existed ten years; and in many other tumors of less importance.

Electricity in Gynecology.—Dr. P. Bröse ("Deutsche med. Wochenschr.," June 13, 1889) states that he has followed Apostoli's method since four or five months, which he considers too short a time in which to reach any very positive opinions concerning its value. He reports three cases, the first being one of multiple uterine myomata. The patient suffered from hæmorrhages at irregular intervals and from pain. The treatment caused a diminution in the size of the tumors and a relief of the symptoms. The second case was one of intramural myoma, in which the tumor became smaller and both the hæmorrhage and pain were relieved. The third case was similar to the second. The author considers the method as being a safe one providing too strong currents are not employed. He has used electricity in six cases of fungoid endometritis, the hæmorrhage not being as quickly relieved as it generally is by the curette, but the effect was lasting. Five cases were cured,

the hæmorrhage disappearing in some after the first application, while in others six to nine applications were required. In some cases leucorrhœa was not entirely removed. He has used the method in order to dissipate old perimetritic exudations in six cases. In three of these complete absorption took place—*i. e.*, the mass became contracted, but adhesions remained. The symptoms were relieved. In cases of diffuse exudates, old adhesions, and cicatricial tissue, his opinion is that the best means of promoting absorption is by massage and the application of the faradaic current. He has also used galvanism with success to combat constipation in women.

Dr. Engelmann's apparatus has been used by Dr. E. G. Orthmann, who reports ("Berliner klinische Wochenschrift," No. 21) a series of ninety-five cases treated in the clinic of Professor A. Martin, of Berlin, most of the patients being outdoor ones. Of these patients, thirty-six were suffering from perimetritis, most of them being complicated by chronic metritis and endometritis, or by retroflexion. Galvanic currents were the ones usually applied, of a strength of 60 to 80 milliampères. In order to relieve pain, the flat negative electrode was placed over the abdomen and the positive ball electrode was introduced into the vagina. In old cases where the pain was not so marked the order was reversed, the negative being inserted for its abortifacient effect upon the adhesions and residual exudates. When chronic metritis and endometritis were present a sound-electrode was introduced within the uterus. For special effect upon the endometrium a pure metallic electrode covered with cotton was passed in the uterus. The number of *séances* needed were from six to eighteen, two or three times weekly, lasting for five minutes. In one case a complete cure was effected in a sterile married woman who was suffering from perimetritis with chronic oophoritis upon the left side, ten sittings being required. In twenty-four other cases there was decided improvement, the pain being relieved. In the eleven remaining cases there was no change for better or worse.

In twelve cases of parametritis of the chronic variety which were treated as above described, the ball electrode being usually passed up to one or the other side of the vagina, no actual cure resulted. In eight there was more or less improvement. In five cases of parametric or perimetritic exudates there was marked improvement among three of the patients after six to twelve *séances*, there being a slight diminution of the mass, relief of tenderness, and disappearance of subjective symptoms. In one case there was no change, while the condition of another was made worse, the patient suffering from a large exudate extending to the umbilicus. It was twice punctured with a platinum wire with a current of 100 milliampères. In six cases of chronic oophoritis, perioophoritis, and salpingitis there was a very good result in one case, the woman suffering from dysmenorrhœa with enlargement of the left ovary. There were twelve sittings, the negative electrode being used in the vagina with a current of from 50 to 100 milliampères. The ovary diminished in size and the infiltrations contracted. In three other cases there was some improvement, while another patient developed fever after the sixth sitting and the treatment was discontinued. In the latter a laparotomy demonstrated the existence of a purulent salpingitis and abscess of the ovary.

Among the menstrual disorders there were twenty-six cases of marked dysmenorrhœa; eight of these caused by chronic endometritis, metritis, oophoritis, perimetritis, or retroflexion; in sixteen the trouble originated in stenosis of the cervical canal. In all these cases, as in the preceding ones, other methods of treatment had proved useless. The negative sound-electrode was usually introduced within the uterus, the strength of the current varying from 30 to 50 milliampères. A small number of sittings, repeated once or twice weekly, usually effected some improvement. A cure followed in six cases due to stenosis, and in all cases there was marked improvement in the pain. The stenosis frequently diminished, even in patients in whom previous dilatation had proved useless. In two cases of membranous dysmenorrhœa there was great improvement; in one no membranes had passed for seven months. The author has never observed any dangerous results.

In four cases of amenorrhœa a cure was effected, the menses being brought on in each case. In one case of profuse menstruation every two weeks, with endometritis, the menorrhagia was relieved in five sittings, beginning with 50 and increasing toward the last to 75 milliampères. In all these cases the electricity was used as a last resort, and

Dr. Orthmann strongly recommends the use of electricity in the treatment of dysmenorrhœa. In other cases it is harder to determine its exact value, as we are compelled to depend upon the subjective feelings of the patients.

The Treatment of Constipation by Electricity.—The following we take from the "Medical News" of July 13th: Dr. Hammond, says the "Revue de thérapeutique médico-chirurgicale," has successfully treated forty-one cases of habitual constipation with a galvanic current. The negative pole is placed in the anus and the positive pole is applied to the abdomen. Faradization was found useful in promoting a healthy tone of the muscles of the abdomen. In connection with the treatment, saline aperients should be administered.

Electrical Excitability of the Columns of the Cord.—From a series of experiments ("Univ. Med. Magazine") Dr. E. T. Reichert infers that when the spinal cord is directly irritated by electrical currents the fibers of the posterior columns constitute the part excited; and, since the roots of the spinal nerves are so highly excitable, it is more than likely that these impart to the posterior columns the property of direct electrical excitability.

Electro-cataphoresis.—Dr. J. I. Pennington, of Baltimore, read before the Baltimore Medical Association, May 13th ("Maryland Medical Journal," July 6th), a report of a case of deep-seated gluteal abscess which, after being opened, refused to heal properly, leaving a sinus about two inches long, which gave much trouble. As the patient, a lady, refused to be operated upon without anæsthetics, while her husband would not allow her to be given chloroform, Dr. Pennington washed the part with a little chloroform to remove the oily particles from the skin. He then saturated some absorbent cotton with the anæsthetic and applied the positive pole of a Barrett battery, using a current of twenty cells for fifteen minutes, after which he introduced a director, then a curved bistoury, and made a cut two inches long with several smaller ones. The lady asserted that she had felt no pain.

A Cure of Nocturnal Incontinence.—Dr. R. Jamin reports ("Abeille médicale," May 13, 1889) favorable results from the electrical treatment of a case of nocturnal incontinence of urine in the case of a young girl aged fifteen, in whom he and others had obtained no amelioration by prolonged medicinal treatment. He employed direct faradization with an olive-tipped bougie applied to the urethra, after the advice of Guyon. The girl had urinated in bed nearly every night for a number of years. After eleven applications she only micturated in bed once during a period of four months.

The Electrolytic Treatment of Œsophageal Stenosis.—Dr. J. A. Fort ("Gazette des hôpitaux," March 19, 1889) treated a patient suffering from fibrous stricture of the œsophagus situated from three to four centimetres from the cardia. The man had been reduced from a hundred and forty-six pounds in weight to a hundred and fourteen. Only an olive of five millimetres could be forced through, and with difficulty. The œsophagus was not dilated. The patient was fed with a tube and somewhat improved. Dr. Fort at the first sitting employed a current from eight GaiFFE cells during two minutes. One plate was placed over the left part of the stomach, the other at the seat of the stricture. The pulse rose from 72 to 90. He only complained of a dull feeling during the day. The next day he was able to partake of soup and boiled eggs without the stomach tube. The second application consisted of sixteen cells, giving a current of thirty milliampères. No blood appeared, the patient vomited, and the reflex nervous symptoms were rather marked. He had some dull pain during the day. The day after this he was able to eat light food. Finally a sound of forty-two millimetres was introduced by Dujardin-Beaumetz. The result will probably be temporary, but is a very useful one.

On the Effect of the Galvanic Current upon the Gastric Secretions.—Dr. A. Hoffmann has established from experiments on men and animals the fact that an electrical current stimulates the excretory apparatus of the stomach. To test this fact the patients were galvanized, the broad anodal electrode being placed on the back and the cathode upon the stomach ("Berliner klinische Wochenschr.," April 1, 1889). A current of fifty milliampères was used. The contents of the stomach were then removed by gastric expression with a tube. They were then examined and compared with those obtained on the previous day, when no electricity had been used. The patients were not allowed any food

for some time before the experiment. The author obtained the following results:

1. In gastric cancer the electricity, having been applied during twenty minutes, three to five hours after meals, caused no increase of hydrochloric acid in any of the patients.

2. In nervous dyspepsia: In one case in which no free hydrochloric acid could be found in the gastric contents electrization caused its appearance. In another case, although no free hydrochloric acid could be demonstrated, the acidity of the stomach contents was increased.

Electrolysis in Stricture of the Urethra.—This matter is one upon which there has perhaps been more controversial discussion than upon any other application of electrolysis. Excellent observers have reported successes in large numbers of cases, but the matter is still considered by many to be *sub judice*. Mr. Lavanne, after a long series of experiments, concludes ("Abeille médicale," Feb. 11, 1889) that electrolysis in urethral strictures gives results which are no more lasting than internal urethrotomy or divulsion. He is in favor of rapid dilatation. M. Fort, in the "Journal des sociétés scientifiques," reports having operated in two cases during the past year without any return of the trouble. In the "Gazette des hôpitaux" he reports another successful case of urethral electrolysis in a man that had had a stricture since 1882. The writer calls attention to his method of linear electrolysis, which is not a prolonged application of currents of a low intensity, but a regular urethrotomy without incision, giving a cut by molecular destruction, which is followed by a soft, non-retractile scar. Dr. Chapiet, in the "Gazette des hôpitaux," reports having personally suffered from a stricture since the year 1863, due to an old blennorrhagia. Until recently he suffered from retention, and at one time had a false passage. Being predisposed to hæmorrhage, he feared a cutting operation, and had recourse to electricity. Dr. Fort passed upon him a No. 15 electrode, later a No. 18, with the result of curing the vesical catarrh from which he suffered, and of improving his general health.

Electricity as a Therapeutic Agent.—Under this title, in the "Medical News" for March 30th, Dr. M. Allen Starr makes the following statements, some of which are not in perfect accord with the generally accepted opinion:

1. Static electricity offers nothing beyond an interrupted galvanic current, and fails to furnish those effects which are most desirable in the treatment of disease.

2. A constant galvanic current can produce chemical changes which aid nutrition or destroy tissue, according to the strength employed.

3. A constant galvanic current can transfer medicines into the body from without.

4. An interrupted galvanic current, or a faradaic current, can excite various organs to functional activity, thereby aiding their nutrition.

5. It is questionable whether the pathological state causing organic diseases is in any way influenced by electricity.

6. If functional diseases are benefited, it is in an uncertain manner, it being undecided whether it is by influencing the molecular condition, the chemical changes, or the electrical state of the organ affected, or by the state of mental expectation induced. The agent is therefore used empirically, and the physiological indications for it are as yet uncertain. As a therapeutic agent its use is very limited, and carefully balanced scientific observations are still needed to establish its proper sphere.

Professor Starr says that he can not close his paper without stating that, after the constant use of electrical treatment for the past six years, he has been disappointed in the results obtained. His experience coincides with that of Gowers—that the therapeutical effects of electrical applications have been much exaggerated, and are really very limited and quite uncertain.

Miscellany.

The Health of Connecticut.—According to the State Board of Health's "Monthly Bulletin," the total number of deaths reported from 166 towns during the month of July was 1,329, including 10

from measles, 4 from scarlet fever, 7 from cerebro-spinal meningitis, 35 from diphtheria and croup, 7 from whooping-cough, 21 from typhoid fever, 15 from malarial fever, 8 from typho-malarial fever, and 6 from puerperal fever. There were also 127 deaths from consumption, 24 from pneumonia, and 17 from bronchitis.

Sulphonal.—In his Croonian Lectures, an abstract of which is given in the "Lancet," Dr. T. Lauder Brunton says: "Sulphonal appears to be one of the most effective of all the newly introduced hypnotics, and, although it does not, like morphine, compel sleep, it induces sleep in a pleasant manner, and has few disagreeable effects and little or no danger." It will be seen by Messrs. Schieffelin & Co.'s advertisement that the cost of sulphonal has been materially reduced—a fact well calculated to encourage its more general use.

ANSWERS TO CORRESPONDENTS.

No. 282.—An examination has to be passed. For permission to appear before the board, and for information as to the time and place of its session, apply to the Secretary of War.

No. 283.—Filter the solution.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

WHAT IS VERITABLE PARALYSIS OF THE POSTICUS (POSTERIOR CRICO-ARYTENOID) MUSCLE?*

BY DR. JELENFFY,
BUDAPEST.

THE arytenoid cartilages must be fixed in order that the crico-thyroid muscles should be enabled to stretch the vocal cords. The fixation can not be effected by the ligaments, because they are too long, would soon be dilated yet more, etc.

The fixation can be done by muscular force only. This force must be exerted in the direction from before backward. There is only one muscle which acts in this direction—the posticus. But the lateral muscles must likewise be in full action in phonation. If both muscles were antagonists, and antagonists only, the posticus would not be able to fix the cartilage, because the antagonist muscles would paralyze each other. Therefore these muscles must be so arranged anatomically that, when contracted simultaneously, their concerted action, instead of paralyzing each other, would result in a force antagonistic to that exerted by the crico-thyroid muscle. That is possible only if the insertions of the posticus and lateralis correspond to the annexed diagram (Fig. 1)—that is, if the insertion of the posticus

falls totally or partially inward of the insertion of the lateralis. In that case, when the two muscles are in simultaneous contraction, the posticus finds its hypomochlion in the insertion of the lateralis, *b*, and this draws (*a b* being the rigid cartilage) the vocal process (*a*) in the direction of *d*, producing the requisite force antagonistic to the crico-thyroid muscle.

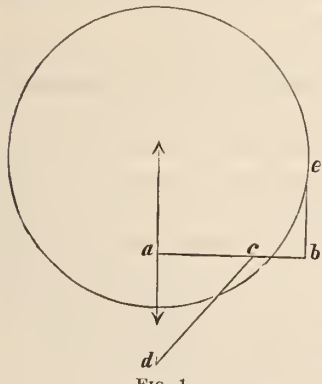


FIG. 1.

But this force is not comprised in the contraction of the posticus alone. The contraction of the lateralis combines with that of the posticus to the same end, the lateralis muscle, on the other hand, finding its hypomochlion in the insertion of the posticus, *e*, and so drawing the vocal process again in the same direction toward *d*.

There exists no other possibility of the fixation of the arytenoid cartilages during phonation. Therefore the anatomical arrangement of the muscles must be conformed to this supposition. And so it really is. The insertion of the whole internal portion of the posticus, which takes its origin from the crista of the plate of the cricoid cartilage, is effectively situated inward of the fibers of the lateralis. This is best seen on inspection of a larynx of greater dimensions than the human larynx—for instance, in that of

an ox. The mutual relations of both muscles appear most clearly when all the other muscles are removed from the cartilage, and only the lateralis and the internal portion of the posticus (the external portion being removed also) are left untouched. To facilitate still better the direct inspection of the insertions, the superior part of the arytenoid cartilage is to be cut away horizontally at the level of the upper margin of the insertion of the lateralis. Then one can absolutely satisfy himself that the insertion of the internal portion of the posticus really lies inward of the insertion of the lateralis. If the origins of both muscles are now detached from the cartilage, and the whole cartilage taken out of the articulation, the vocal process goes inward if both muscles are pulled.

In consequence of the anatomical arrangement of these muscles, the arytenoid cartilage is inclined backward in still another way. While the fibers of the internal portion of the posticus adhere, in the whole, in a horizontal line, those of the lateralis go downward on the whole length of the muscular process. In consequence there is developed another variety of the above diagram, standing here vertically, but with the same results (Fig. 2).

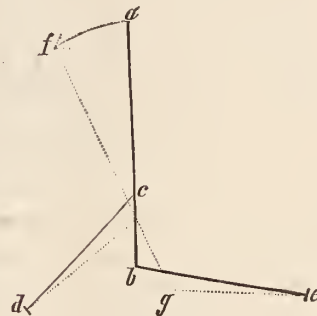


FIG. 2.

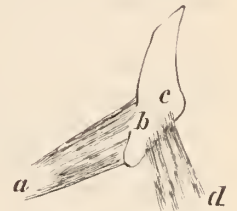


FIG. 3.

The external portion of the posticus is in no wise able to hinder this mechanism, because the only question for that portion is that its insertion should be rotated. Its insertion and its fibers running almost completely vertically downward, while the most rotating fibers of the lateralis run almost horizontally, it is not in the least able to hinder the rotation (Fig. 3).

The external thyro-arytenoid muscle participates in producing the tension of the vocal cords principally in the same manner as the lateralis.

The insertions of the posticus and of the thyro-arytenoideus internus being situated vis-à-vis of each other (Fig. 4), by the simultaneous contraction of both muscles the arytenoid

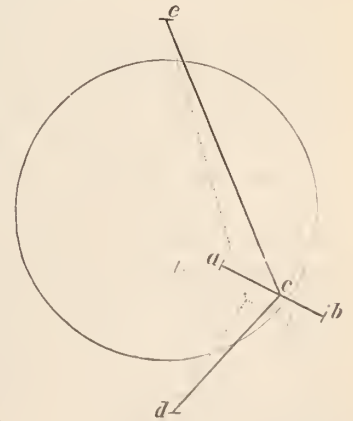


FIG. 4.

cartilages are approximated to each other. Thus, even in associated action with this muscle, the posticus becomes a closer of the glottis.

* Read by J. Solis-Cohen, M. D., before the Laryngological Section of the American Medical Association, June, 1889.

If the contractions of the muscles are imitated with threads, the effects described become manifest.

Physiological facts correspond with the deductions based on anatomical grounds. In looking into the singing larynx, we see that the arytenoid cartilages become the more erect the higher the pitch of the tone made. There is no other muscle to effect this than the posticus.

When the pneumogastric nerve is irritated by very strong electric currents, the vocal cords become extraordinarily stretched between the anterior and the posterior stretching forces (Krause). In spite of this, the arytenoid cartilage is not drawn forward and downward by the posticus, but backward. That this muscle, too, is acting simultaneously is proved by a direct experiment we made with Regeczy. Irritation of the recurrent laryngeal nerve produces an energetic occlusion of the glottis. But, if we then cut the closers (*internus included*), the larynx is opened with equal energy on irritation of the recurrent nerve.

As the experiments of Hooper, of Donaldson, and of Semon and Horsley show, feeble irritation of the nerve causes opening, and stronger irritation causes closing of the glottis. (The most recent experiments of Donaldson prove the same, because irritation with slow rates of interruption is only a feeble irritation.) In the animal narcotized very deeply, irritations of the recurrent nerve cause opening. The narcosis becoming less deep, closing of the glottis occurs again. This shows that the posticus is more irritable than the closers, and that the narcosis has no influence on it, its action manifesting itself both before and after the development of the influence of narcosis. If the animal dies from an overdose of ether, irritation of the recurrent nerve still causes opening during some short time, and then closing is produced again. This fact has induced the false interpretation that the irritability of the posticus is soon exhausted after death. But we have, with Regeczy, cut the closers here again, and again irritation of the recurrent nerve produced energetic opening. This experiment, in both its variations, might be regarded as decisive of the whole question—perhaps still more so if it is associated with the cork experiments of Krause. If, after the stabilization of the vocal cord in the middle line, the closers are cut through, the arytenoid cartilage immediately moves outward, the posticus making unweakened energetic movements on irritation of the recurrent nerve. Thus it is proved that here the posticus is not paralyzed, but that all the muscles are in primary contraction. The consequence of these laws is that, with paralysis of the posticus, the voice can not be normal, because then the force dc (Fig. 1) would fall out of the category, and the whole line ab (the arytenoid cartilage) is drawn forward by the forces af and be , in physico-formulary sense, without resistance—in reality, with so much resistance as the lax capsule and its ligaments are able to develop. The vocal cord can then only be stretched so much as on the dead larynx without special fixation of the cartilages—*i. e.*, only to a very slight degree. The physical consequence must be feeble vibrations of a low, very little variable rate; in other words, a feeble, deepened, monotonous voice if the affection is on both sides, a troubled voice if it is on one side only.

In the descriptions of cases of so-called "paralysis of the posticus" many instances are to be found supporting my law, although the observers thought that they saw paralysis. They are to be seen, even if the pathological situation is created artificially (Krause). If the animal is narcotized, its glottis is somewhat less narrow; if it awakes, the glottis becomes narrowed—actually, the animal endeavors to open the glottis by a contraction of the posticus, but, the closers being contracted at the same time, the posticus, too, becomes (in accord with our formula) a closer. This is the true explanation for the narrowing of the glottis on inspiration, in cases of disease also, which made the impression of "something active" upon more than one observer (Hansen, Schnitzler, Rosenbach, Krause), as is evident from their expressions.

This explains at the same time why the glottis is only closed the more firmly if, in the cases of "paralysis of the posticus," that muscle is irritated by electricity.

Besides these, there were yet other symptoms of irritation in these cases—for instance, the laryngeal spasms, the laryngeal crises that preceded the stabilization of the vocal cords in the middle line, forming *acute examples* of the malady.

It is clear that "sonorous inspiration," too, can only have the signification of "inspiration between approximated and stretched vocal cords," which, again, is possible only with an intact posticus.

The most important symptom of irritation is the contracted state of the transverse muscle, which will be again alluded to.

In what we have just exposed lies the cause of the consecutive atrophy of the posticus. By its contractions, which are simultaneous with contraction of the closers, the dyspnoea only increases. To make this cease, both man and animal contracts only the more this same muscle—the only one that opens the glottis under ordinary circumstances. The muscle in this "circulus vitiosus" becomes overworked, and the atrophy is the result of the overstraining of its forces. The atrophy of its nerve fibers is then consecutive only. This atrophy can commence at the point of irritation (as in cases of aneurysm, cancer, etc.).

When atrophy is already developed, the arytenoid cartilage bends forward and the voice is troubled, as shown in the descriptions of many cases.

The greater irritability of the posticus is a proved fact, and a particularity of this muscle, which it possesses in community with the other muscles of organic life. But the supposition is false that the posticus or its nerve fibers should be more vulnerable than the closers. It is a false supposition that the posticus should die earlier after death than the lateralis, because, if immersed in oil that is maintained at a temperature of 35° to 37° C., both muscles die in the same time, as is proved by our experiments with Regeczy. We have recently made three new experiments. In two cases the posticus again lived as long as the lateralis, and in the third case it outlived the lateralis on one side by five minutes, and on the other side by twenty minutes.

We have studied the influence of maintaining warmth upon the intercostal muscles and the diaphragm also, that

are akin to the posticus, and found that the irritability of the pieces kept warm considerably outlasted in general that of the pieces allowed to cool off.

That the diagnosis "paralysis of the posticus with consecutive antagonistic contraction of the closers" is groundless, can even be demonstrated from the standpoint of its champions. Antagonistic contraction is created thus: One muscle makes a contraction and moves the part on which it has its insertion. Relaxing, it has not the power to return to its former length, if it is not stretched mechanically by the weight and elasticity of the parts, or actively by the antagonistic muscle. If it is not stretched, its tissue accepts the new length, establishes itself conformably, and the antagonistic contraction is ready. That is, antagonistic contraction is sometimes absolutely passive. It accomplishes no labor, but is the result of circumstances over which the antagonistically contracted muscle has no power at all. But if the vocal cords are durably fixed in the middle line, there is labor accomplished and maintained, because the arytenoid cartilage, with the soft parts adhering to it, must be pulled upward on the steep upper margin of the cricoid cartilage. Here must be overpowered the weight and elasticity of the arytenoid cartilage and its soft parts. The transverse muscle, therefore, must be contracted actively. If this contraction ceases, the arytenoid cartilage, in consequence of its own weight and elasticity and that of its soft parts, must glide immediately down as far as the articulation allows it—as far as the cadaveric position. And this is another clew to the situation, which is indubitably characterized as a primary contracture, the nerve fibers of the transverse muscle being subjected to the same irritating influences as the nerve fibers of the other muscles.

It is thus clear that, if the vocal cords are fixed durably at the middle line, all muscles that are supplied by the recurrent laryngeal nerve are in primary contraction, the posticus included, and that this last muscle, if contracted simultaneously with the closers, becomes itself a closer, but, in community with these muscles, forces the arytenoid cartilage in a direction antagonistic to the action of the cricothyroid muscle.

The symptoms of veritable paralysis of the posticus are, if on one side only, with phonation: Voice more or less hoarse, arytenoid cartilage of the affected side bent forward, its posterior surface seen extraordinarily well, its summit lying more forward than that of the sound side. The vocal cord is in the middle line, sometimes even somewhat overstepping it. The process with the vocal cord lies somewhat deeper. The vocal cord appears to be less broad, shorter, and rectilinear. The false vocal cord is much advanced inward, and rectilinear too.

In respiration, the affected vocal cord goes back only as far as the cadaveric position; and the true and false vocal cords remain less broad and rectilinear.

The thinness, rectilinearity, and shortness of the true vocal cord, as well as the inward excursion of the false one, are signs of the antagonistic contraction of the internal and external thyreo-arytenoid muscle, there being no force to draw the arytenoid cartilage outward beyond the cadaveric position. The lateralis, too, is established in this length;

that is to say, it is also in antagonistic contractions. In my article, "Zur Anatomie, Physiologie und Pathologie der Larynxmuskeln," I constructed the symptoms of veritable paralysis of the posticus partly theoretically. When I admitted them spontaneously, I had not thought of some of the above conditions which must follow the paralysis of the posticus as mediate symptoms, as being caused by the inevitable antagonistic contraction of the internal and external thyreo-arytenoid muscle. Since then I have studied them on the living subject and have cured all symptoms completely by faradization of the posticus.

When the affection exists on both sides, the same symptoms should be observed on both sides. The voice should be weaker, deeper, and monotonous. Respiration might be impeded, but much less so than in contracture. I have seen as yet no such case.

The above symptoms of antagonistic contracture of both thyreo-arytenoid muscles are present also if the cricothyroid muscle is paralyzed or weakened; but in this case the position of the arytenoid cartilages is symmetrical. Here the symptoms disappear after faradization of the cricothyroid muscle.

Concerning details, see my articles: 1. "Ueber die Fixation der Arytänoidknorpel während der Phonation" ("Wiener med. Wochenschrift," 1872). 2. "Ueber die elektrische Contractilität der Larynxmuskeln nach dem Tode und den 'Äther Effect'" ("Berliner klin. Wochenschrift," 1888). 3. "Zur Anatomie, Physiologie und Pathologie der Larynxmuskeln" ("Berliner klin. Wochenschrift," 1888).

THE PROGRESS OF THE MEDICAL SCIENCES IN OUR OWN TIMES.

By HENRY S. STARK, A. B., M. D.

THROUGH the light of modern reason and research the advances made in the medical sciences in our own times have been so great and rapid as to inspire even the most sanguine doubter with the hope that medicine, as based on the "inductive" method of discovery, will soon reach the dignity of an "exact and positive" science, and that its mission, the preservation of man in health and disease, will be fulfilled ere many decades elapse.

Such marvelous changes has time wrought on the art of healing that the principles and practice of medicine of to-day is a transformed science dealing with methods and material different in many respects from that of previous centuries—a science, in short a creation, whereof it may truly be said "the child has been father to the man."

This reformation had its origin in the beginning of the present century with the Parisian school of medicine. The changes this school instituted were so radical, and so completely annihilated the old methods, even to their very roots, that in the course of ninety years the medical sciences suffered a complete transformation and purification.

It was in the beginning of this century that the Parisian school of medicine rose into prominence. Among its leaders were Corvisart, Cruveilhier, Laennec, the discoverer of the method of auscultation and, according to some authori-

ties, the founder of the study of pathology, and later on Magendie and Trousseau. These men based their investigations on the study of pathology, on chemistry, which had gradually replaced alchemy, and on physical diagnosis, a new study, by means of which they attempted to interpret the signs and symptoms of disease to the five senses.

The school adopted methods which must have appeared Utopian to their predecessors; it founded the study of pathology, and gave it an impulse still felt to-day. It exercised for the time an influence over medical minds all over Europe and America, inasmuch as they based all their observations and discoveries on the study of pathological anatomy, seeking for the seat of disease among the simplest structures of the economy and in the ultimate elements of the body, in the firm belief that perfection in the study of morbid anatomy meant perfection in diagnosis and in therapeutics.

The Parisian school was succeeded by the Vienna school founded by Rokitansky. They took up the work begun by the Parisians, added brilliant discoveries, and were succeeded by one who was so great in his works as to form a school by himself, and who is justly considered the greatest pathologist of our times—Rudolph Virchow. Virchow's marvelous work on "Cellular Pathology," the fruit of careful observation and experimentation, appeared in 1858, and was received all over the medical world with enthusiasm. It was especially of inestimable value in ranking the study of medicine among the exact sciences. The aim of the work, as Virchow himself says, is "to offer a view of the cellular nature of all vital processes, both physiological and pathological, animal and vegetable, so as to distinctly set forth the unity of life in all organized beings."

Thus to-day, with the data derived from the study of pathology, we can proceed on rational principles at least to account for the changes in the nutrition, in the arrangements, in the secretions and excretions of the structures of the body in health and disease; we can clearly comprehend the nature of diseases and their lesions, and can interpret and combat the symptoms of the same.

The medical sciences of ancient and middle ages we now consider to have been heretical and wedded to religion, while the more modern medicine—that which extended from the middle ages down to the time of Vesalius in the sixteenth century—we now consider to have been empirical. Vesalius marked an era in the history of medicine—a renaissance, as it were—for by his indefatigable zeal and labors the study of the human anatomy first became firmly established. His personality and those of his contemporaries and immediate successors—Falloppius, Asellius, Harvey, Morgagni, etc.—were influential throughout the scientific world, and it must be admitted that their researches have greatly enhanced the medical sciences. Before his time heresy and empiricism were the fashionable doctrines of the medical charlatans, while their most effective remedies were the anulet and the abraeadabra. Since his time down to the present day the medical sciences have been suffering a slow process of evolution, so that to-day we are dealing with a science divorced from priesthood and founded on

facts and phenomena revealed by clinical observation and physiological experiment.

The fallacy of the old medical "systems" of which Boerhaave, Van Helmont, and Brown were founders is now acknowledged, and the attempt to explain the causation and treatment of disease on the "pneuma,"* "vital forces," "humors," and the "archæus," has been frustrated by the more accurate and better equipped laborers of the nineteenth century, while the theories advocated by these brilliant intellects have fallen into disrepute, and the knowledge they left behind is interesting in so far as it marks an item on the pages of history, standing there solely as a legacy of the past.

It is fortunate that these old "systems" of medicine, and the wild speculations that accompanied them, have nearly all disappeared. One "system" still innumbers the onward march of the medical sciences; I refer to homœopathy. It is indeed strange that this system of dogmas and sterile doctrines is still suffered to exist, and even to flourish. Yet, if we may correctly judge the future from the past, the fate of this system is inevitable; the same factors that eradicated the others will be likely, in due course of time, to consign this one to oblivion.

In the medical sciences of to-day we no longer look for the "pneuma," the "vital forces," the "humors," or the "archæus," but rather inquire into disordered functions, impaired nutritions, structural derangements—in short, our knowledge of to-day is not based on heresy and empiricism, but on physiology and pathology; light and reason have succeeded ignorance and superstition.

It is far from my intention to depreciate entirely these old "systems" or to denounce their authors, for, however great their errors, their efforts have resulted in permanent improvement, not alone in medicine, but in other departments of knowledge. The theories of these giant medical thinkers, developed and elaborated at a time when the facts of science were few, the technicalities of detail scarce, the methods of investigation crude, were far in advance of the times in which their authors lived; their doctrines were believed by their contemporaries to be the consummation of the ideal of medical knowledge, and formed a basis for the classification of diseases which, however unscientific when submitted to modern tests, was a marvel of ingenuity and originality of thought. The errors of these "systems" served later investigators as a practical school for in-

* "Pneuma," *πνεῦμα*, "vital principles or forces." "Terms used probably by Hippocrates *et al.* to denote a something different from the immortal soul on the one hand and the mortal body on the other, endowed with intelligence and appointed as a sort of internal guardian angel to avert danger and cure the maladies of the body over which it presides."—J. R. RUSSELL, "Art of Medicine."

"Archæus," *αρχαῖος*, of Van Helmont. The archæus is the curative spirit which, working upon the raw material of water or of fluidity by means of a "ferment," excites all endless actions which result in the growth and nourishment of the body.—J. R. RUSSELL, "Art of Medicine."

Humors of Hippocrates were black bile, yellow bile, the blood, and phlegm. Out of the excess or deficiency or misproportion of these four humors there arise diseases; by restoring the correct proportion, diseases are cured.—J. R. RUSSELL, "Art of Medicine."

struction, guiding them to the advancement of a more exact science and arming them against the unscientific tendencies of the times.

In tracing the progress of the medical sciences of our own times, and in contemplating the changed complexion of events in medical thought and methods, it will naturally suggest itself to our minds to inquire, firstly, into the influences to which we attribute the marvelous results achieved by men of our own day, and, secondly, into the extent in which these sciences have fulfilled their ultimate mission.

I venture to state that the progress of the medical sciences in our own time has depended directly and proportionately on the corresponding progress made in the sister sciences; to physics and its correlative branches—mechanics, optics, acoustics, electricity; to organic chemistry; to biology; to natural history, and all the other sciences, abstract or concrete, practical or theoretical. The association between the sciences, moreover, is so universal and inseparable that the gradual development of any one depends on the correlative development of the others. This relationship becomes apparent when we study the history of medicine through its various eras—the primeval, mediæval, modern, and contemporaneous—for we then see that the progress in medicine has been simultaneous and running in the same channel as the improvements made in the other sciences, and that the great discoveries in the one branch have depended on the great discoveries in the general sciences. For instance, the discovery of the laws of reflection and refraction of light led later on to the construction of the microscope, spectroscope, ophthalmoscope, etc., and their subsequent application to the art of healing; the discovery of the laws of the conduction of sound-waves gave birth to the stethoscope; so the urometer depends for its employment on the principles of specific gravity, and so the broad principle is applicable not only to clinical apparatus, but to all branches of the medical arts and sciences. We see it exemplified in physiology, where our knowledge regarding the functions of nutrition and the nature of reproduction has been wonderfully enriched by comparative studies in biology; in therapeutics, where the introduction of new medicaments has depended on the brilliant discoveries in organic chemistry and in botany.

The lesson that these observations teach is that a great discovery often requires the experience of generations for its practical application to the arts and sciences, nor can we estimate the value or importance of it at the time it is made, for while a particular discovery may appear insignificant *prima facie*, yet it may stimulate and encourage experimentation so as to lead to other discoveries, which latter may prove of inestimable value. The properties of the loadstone and of amber were known to the ancients, yet centuries elapsed before the wonders of magnetism and electricity were revealed and put into practice; the laws of the transmission of sound-waves through different media were known long before the methods of auscultation and percussion were employed in diagnosing the condition of subjacent parts of the body.

To the inquiry to what extent the medical sciences have reached their ultimate mission I would answer that it has

been established beyond all question that the recent appliances of intellectual sciences and the great increase in human knowledge have placed at our disposal means with which the physician can lessen human suffering and mitigate pain, can maintain health and abort disease. Secondly, some of the epidemics and plagues that formerly depopulated countries and baffled all human skill have been robbed of their terrors through our elaborate system of quarantine and our improved laws of hygiene; thus the ravages of typhus and typhoid fevers, of Asiatic cholera and yellow fever, occur less frequently, and are almost unknown in certain quarters that were visited at regular intervals. Thirdly, the treatment of other diseases has been so modified and improved that the great sacrifice of life that formerly attended them has considerably diminished; thus the dreaded disease small-pox claims few victims since the brilliant discovery of Jenner; the progress of tuberculosis of lung or of bone can be oftentimes retarded by the judicious administration of cod-liver oil in the former and the early resort to the knife in the latter; the frightful mortality that formerly accompanied puerperal fever has given way to absolute safety in the lying-in chamber, while the frequency of surgical diseases—as septicæmia, pyæmia, gangrene, and erysipelas—has been diminished by the recent improvements of modern surgery; and so throughout the whole category of diseases improvement in the method of treatment has been followed by improvement in such rapid succession that it has been computed by some English observers, from a comparison of hospital reports and census statistics, that the term of human life of the individual and of the masses collectively has actually been lengthened.

Despite our brilliant researches and our ever-increasing successes, we have not attained perfection, nor can it be expected that we ever should, for that would mean life everlasting, a principle at once at variance with the laws of nature. Life is a cycle beginning and terminating in death, and death is as necessary for the perpetuity of the human race as life itself is. We must ever bow to Nature's laws and never defy her. Since the vast fabrication of human knowledge has been built upon her teachings, it is well to remember the words of the French philosopher Condillæ: "All our knowledge we owe to Nature, that in the beginning we can only instruct through her lessons, and that the whole art of reasoning consists in continuing as she has compelled us to commence."

The ideal of the medical sciences, therefore, is still a desideratum. There are medical problems which are no nearer solution to-day than they have been for generations past. There are still mysteries connected with medicine which are as deep as the Sphinx and as dark as the Sibyl. Nor can we as yet have hopes of that millennium when disease shall cease to exist and the physician's vocation shall be a lost art. Hippocrates's aphorism will ever hold true: "Life is short, art is long, experience deceptive, and judgment difficult."

While I purpose now to describe briefly some of the most important events in the history of medicine in our own times, yet I do not intend that this shall form a chronological recapitulation of all noteworthy events, nor a

biography of the half dozen great men who have played leading parts on the world's medical stage. It will be convenient for my purpose to divide the subject into general medicine and general surgery, using the terms in contradistinction.

Foremost in importance among the brilliant innovations of the nineteenth century is the rise and development of the "germ theory of diseases" and the new science it has given birth to—bacteriology—a study which now occupies a place in the regular course of study in many of our medical schools of learning.

Perhaps no biological theory or problem has ever attracted a greater share of the attention of the medical world, nor has resulted in more lasting benefit to mankind, than the theory that certain diseases owe their specific character to the presence in the system of minute organisms derived from without. The germ theory is not the production of mere chance nor the result of accidental discovery, but is the inevitable outgrowth of a long chain of experiments covering a number of years, carried out by Schwann, Tyndall, Pasteur, Lister, and others on the theory and nature of the parallel processes of fermentation and putrefaction.

Just how much the germ theory has accomplished it is difficult at the present time to determine on account of the uncertainty of many of the data and because we do not know what bearing our knowledge of to-day may have on future discoveries, especially since the pathogenic relations between bacteria and diseases are not yet clearly understood.

We can not assume that a particular disease is caused by a particular micro-organism simply because that bacterium, bacillus, or what not, is invariably found in that malady. There are still other conditions to be fulfilled before the chain of thus reasoning by analogy can be complete. Klein has formulated several laws governing the relation between micro-organisms and diseases which seem to cover the ground. He says: 1. "It is absolutely necessary that the organism in question is present in the blood or diseased tissues of man or of an animal suffering from the disease." 2. "It is necessary to take these organisms from their *nidus*, to cultivate them artificially in suitable media outside the body; . . . to go on cultivating them from one culture to another for several generations, in order to free them from every kind of matter derived from the animal body from which they have been taken in the first instance." 3. "After having thus cultivated the micro-organisms for several successive generations, it is necessary to re-introduce them into the body of a healthy animal susceptible to the disease, and in this way to show that this animal becomes affected with the same disease as the one from which the organisms were originally derived." 4. "It is necessary that in this so affected new animal the same micro-organisms should again be found." (See "The Practitioner," London, March, 1884.)

The number of diseases for which micro-organisms have been discovered is legion, but only a few of these—such as malignant pustule, relapsing fever, tuberculosis, and perhaps hydrophobia—have fulfilled the requirements of Klein's

laws, and only for these can the germ theory be said to be established.

What we do know, is that the germ theory offers a satisfactory explanation of the morbid agencies by which certain of the infectious diseases are communicated, and that the treatment of these diseases has undergone radical changes in conformity with our advanced views.

If we estimate the value of the germ theory, not by what it *has* accomplished but by what it *promises* to accomplish, we are inspired with the hope that we shall soon understand the nature of the morbid agencies that create disease, and shall be able to destroy their power of communication and of propagation.

Another event which marked an era in the medical history of our own times was Schönlein's discovery in 1839 that the contagiousness of the disease of the scalp called favus was due to a vegetable parasite or fungus. This was the first of a series of brilliant discoveries on parasitic diseases of man, of animals, and of plants. The constant presence of fungi in herpes tonsens, pityriasis versicolor, aphthæ, and other diseases has since been established.

Other discoveries in general medicine which may be mentioned *en passant* were: The establishment of the non-identity of the two affections typhoid and typhus fevers by Louis in 1839; before this date, the specific difference in ætiology, pathology, and symptomatology between the two diseases was unknown; the true and certain character of many of the diseases of the kidney was first announced by Bright in 1837; important contributions have been announced in our knowledge regarding the localization of diseases of the brain and spinal cord. Recent additions to nosology are Addison's disease of the suprarenal capsules, first announced in 1855; Graves's disease, exophthalmic goitre, to which attention was called only within the last few years; Hodgkin's disease, pseudoleucæmia, first described in 1832.

Gerlach's experiments to show that consumption may be contracted by drinking the unboiled milk of tuberculous cows deserve also to be mentioned here as a comparatively recent discovery.

In the domain of therapeutics the same activity has been manifested as in the other branches of medicine. The great number of new drugs and remedial agents that have been added to our therapeutic resources is certainly encouraging evidence of the great reform in medicine which recent times have realized. The discovery of these drugs, which have taxed organic chemistry and botany to their utmost, is a healthy indication of the great benefit that is to be derived from the application of the "experimental method" to the medical sciences.

Yet, when we examine the list of these new drugs, we can not help remarking how few of them will stand the test of time and experience, and how few there are which might be considered in the light of specific remedies to counteract particular diseases. It is a well-known fact that most of the new medicaments that are destined to stay in the materia medica never reach organic disease, but only palliate the symptoms incidental to such disease. This is true of the new antipyretics, anæsthetics, analgesics, hyp-

notics, and cardiac stimulants; an exception to this rule is, however, found in the new antiseptic medications based on the germ theory of disease.

The deplorable scarcity of specific remedies was already recognized as early as the beginning of the seventeenth century by the great scientific luminary, Sir Francis Bacon, in his "Novum organum." In this work he states that he finds a "deficiency in the receipts respecting the cure of particular diseases, . . . and that medicine was to be improved by the discovery of remedies for the cure of particular diseases, which discoveries were made, not in years, but in ages."

Our most important therapeutic resources are acquisitions of the last fifty years. To this category belong the inhalent anæsthetics—ether, chloroform, nitrous oxide; the local anæsthetics—cocaine and methyl chloride, which last gives promise of a great future, especially in the treatment of neuralgias; the cerebral sedatives—the bromides and chloral; the use of the salicylates in rheumatic affections; the antiseptic medicaments especially employed in gastrointestinal and pulmonary affections; the new antithermic remedies and cardiac tonics, which are too well known to require enumeration here. Of remedial agents other than drugs we would cite hypodermatic medication, the numerous precious uses of water and of electricity, artificial digestion by mouth or rectum, the pneumatic differentiator in pulmonary complaints, stomach irrigation (lavage), forced feeding into the stomach (gavage), intestinal irrigation *per rectum* (enteroclist), and a horde of others too numerous to note in this paper.

Surgery, as an art and science, may with propriety be said to have witnessed the greatest improvements of all branches of medicine. The history of surgery of the nineteenth century is the history of an uninterrupted series of successes, culminating in a new modern system. This flourishing and improved system of modern surgery owes its existence to (1) the use of the anæsthetics, (2) the application of the Listerian principle, (3) the introduction of Esmarch's elastic bandage to control profuse hæmorrhage during operations, (4) the elaboration of surgical appurtenances, (5) the extensive yet perfect method of reporting the results of observation through that great avenue of communication, the medical press, and through society reports, personal intercourse, and international congresses.

It is fair to assume that, as far as the saving of human life or misery is concerned, the anæsthetics have played the most important rôle. Their practical application is one of the wonders of science. Hippocrates's saying that "to relieve pain is a divine work" is most beautifully demonstrated here. I would consider the three most brilliant achievements of modern surgery the use of the inhalent anæsthetics, the application of the antiseptic theory, and the use of the elastic constrictor for the production of artificial anæmia.

Many of the crowning triumphs of modern surgery are due to the Listerian principle. To the eminent author of this method of treatment mankind owes a debt of incalculable gratitude for having, more than any one before or after him, advanced operative surgery to so high a degree

of perfection. The aseptic method initiated by Lister in 1865 is briefly nothing more or less than an exact method founded on a special theory. The exact method is the prevention of putrefaction in wounds, whether surgical or traumatic, by destroying the septogenic power of the aerobic micro-organisms by means of certain antiseptic drugs—carbolic acid, originally—and certain antiseptic precautions. The special theory is the germ theory. Listerism is thus one of the branches of bacteriology.

Lister was not the first to demonstrate the noxious effects on wounds of micro-organisms suspended in the air; the experiments of Pasteur, which preceded Lister's—especially those which led the eminent Frenchman to discover the yeast plant and its relation to alcoholic fermentation, and his later discovery of the lactic-acid fermentation—formed the basis of Lister's discoveries and labors. Pasteur, therefore, was the first who demonstrated the living nature of fermentation and its kindred process, putrefaction, while Lister was the first to systematize a method of wound-treatment based on these discoveries.

At a lecture delivered by Sir Joseph Lister, on October 10, 1876, at the Charity Hospital, New York, he frankly acknowledged this, and said: "When Pasteur showed that putrefaction was a fermentation, it occurred to me that here was a chance for improvement; we may prevent putrefaction if the cause is not the access of air, but of living organisms developed in the air, and which in the blood are the causes of putrefaction." ("Medical Record," 1876.)

Listerism is the *sine qua non* of modern surgery. Time and experience have demonstrated the soundness of the principle, while the results alleged for this practice have been more than realized in the certainty of success with which operations are now undertaken which hitherto were regarded as unwarranted and unjustifiable. It has almost abolished suppuration, secondary hæmorrhage, and erysipelas, while, on the other hand, it has increased the proportion of recoveries after operations, so that, in amputation of the extremities alone, the percentage of recoveries has increased, on an average, from sixty-five to eighty-five per cent.

To the introduction of the aseptic method we owe those remarkable achievements in intra-abdominal, intra-cranial, and intra-spinal surgery which are now every-day occurrences in our hospital wards. Among the many successes attributed to this method are: primary healing of sutured wounds; the substitution in selected cases of excision and resection of joints for amputation; plastic operations, including skin-grafting and transplantations; operations for deformities and operations in special branches of surgery; union by suture of nerves, tendons, muscles, bones, with complete restoration of functions; exploratory operations for diagnostic purposes, etc.

This, then, is a *résumé* of the more important innovations that have signalized the latter half of our century. In the race for advancement the medical sciences have outstripped many of the other sciences, proving that medicine is not stationary but eminently progressive, while the results achieved demonstrate that medicine is no longer theoretical and speculative, but practical and experimental. The ex-

perimental method of research and the inductive method of discovery have been mainly influential in creating and developing medicine on its present renovated basis. Irrational speculations, sterile theories, and dogmatic systems have fallen into insignificance when compared with the importance that now attaches to the *clinique*, the microscope, and the test-tube as fields for study.

Our knowledge of to-day is as nothing when compared with what we soon shall know. The present is a stirring, hopeful age; the future, however, is pregnant with grander inspirations. The spirit of the times indicates an everlasting struggle of science and humanity for *light, more light*.

270 EAST SEVENTH STREET.

EXPERIMENTS RELATIVE TO THE
THERAPEUTICAL VALUE OF
THE EXPRESSED JUICE OF THE TESTICLES
WHEN HYPODERMICALLY INTRODUCED INTO
THE HUMAN SYSTEM.

By WILLIAM A. HAMMOND, M. D.,
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At a recent session of the *Société de biologie* of Paris Dr. Brown-Séquard created considerable astonishment by describing certain experiments which he had performed upon himself with the expressed juice of the testicles of dogs and guinea-pigs. This juice, mixed with a small quantity of distilled water, he injected by means of a hypodermic syringe under the skin. He stated that the effect was such that he felt as though he were at least ten years younger; his capacity for mental and physical work was greatly increased. Peristaltic action of the intestines, which had been absent for several years, returned, and he likewise regained power over the bladder and its sphincter. I do not dwell longer upon his experiments, for the details of them have been published in nearly every medical journal of the country, as well as in probably every newspaper in the United States. It will be sufficient to say that they were confirmed by Dr. Variot, who experimented upon three old men, and who obtained nearly identical results with those which followed Dr. Brown-Séquard's injections upon himself. Dr. Variot made use of rabbits and guinea-pigs.

My own experiments began on July 24th, and my method of procedure was as follows: I used the testicle of the young ram, stripped it of its coats, cut it into small pieces, and crushed them in a Wedgwood mortar till they were reduced to a pulp. A quantity of pure water equal to about half the bulk of the crushed testicle was then triturated with it, and the mixture was then filtered through Swedish filtering paper. The liquor, previous to being injected, was examined microscopically; it was always found to consist of oil globules in small quantity, red blood-corpuscles, white blood-corpuscles, numerous cells having very much the appearance of the blood-corpuscle-holding cells of the spleen, a large amount of morphological matter, consisting of the tissue of the testicles, and very generally spermatozoa. In one instance some of these latter were

alive; in all the others they were dead. I injected from fifteen to thirty minims each time. Usually the place selected was the anterior portion of the forearm; at other times it was the arm near the insertion of the deltoid muscle.

In nearly every case the liquor was injected under the skin within an hour and a half after the death of the animal. In no case was it used at a later period than three hours after the animal was killed. In some of the cases it was injected within three quarters of an hour.

CASE I.—The first experiment was performed upon myself; not that I thought I required the injection for any infirmity, but simply in order that I might experience in my own person any ill effects of the injection before proceeding to use it in the cases of other persons. I can not say that I experienced any particularly strengthening effects or any marked degree of mental exhilaration, but a result ensued for which I was entirely unprepared and to which my attention had not been in the slightest degree directed.

In May, 1888, while attempting to get on a railway train which was in motion, I found that it was going so rapidly that I could not keep my footing long enough to make a spring to the platform. I was obliged to let go or run the risk of being killed. I was thrown some thirty feet, striking on my left shoulder and bruising my left side. The left arm, as a consequence of the fall and the straining it had received while holding on to the car, became almost useless for certain purposes. Up to the time of the injection it had been the seat of constant pain. I could not put it behind me or place it on top of my head, nor put on my coat without assistance. The injury seemed to have been mainly concentrated upon the deltoid, coracobrachialis, triceps, and latissimus dorsi muscles. The symptoms had not been mitigated in the least up to seven o'clock on July 24th, when I took the hypodermic injection. I went to bed at about eleven o'clock that night. When I awoke in the morning the pain was gone and I could move my arm in all directions as well as ever I could in my life, and it has remained perfectly well ever since, up to this date, August 26th. I can perform any movement of the arm of which it is capable, and it is absolutely free from pain under all circumstances.

The local effects of the injection were scarcely noticeable; there was a little diffused erythema, but nothing else.

I took a second injection on July 26th, but I observed no general effects therefrom. Locally, however, there was a good deal of disturbance. At the point where the syringe had entered, a swelling as large as a walnut appeared, and the parts around were inflamed and painful. Suppuration followed; the abscess was opened several days afterward and about a drachm of pus was evacuated.

CASE II.—The patient, a man, aged sixty-five, had suffered for several years with insomnia and feeble heart. His pulse was weak, averaging ninety-five in a minute, irregular both in rhythm and in strength, and intermitting regularly every third beat. There was no valvular disease, and I regarded the heart trouble as being one of simple cardiac weakness probably due to fatty degeneration. An injection of the fluid, prepared as described, was made under the skin of the left forearm on August 4th, at about ten o'clock in the morning. I failed to note the effect upon the heart at the time, as my mind was directed toward the relief of the insomnia and some marked depression of spirits under which he labored. But at about three o'clock that afternoon I felt his pulse. The intermittence had disappeared, the cardiac impulse was stronger than I had ever noticed it in him, and it had fallen in frequency to eighty-five. He told me that he felt more cheerful than he had for a long

time. He walked more erect, and could mount a staircase without his respiration becoming accelerated. That night he slept well, but there was no after-relief of the insomnia. His pulse, however, remained regular and strong till August 24th, when the irregularity reappeared and the heart again became weak. This patient, aware of the abscess in my arm, preferred not to take another injection, and I did not press the matter on him.

CASE III.—A man, aged thirty-four, had been for several years affected with impotence and at times great mental depression, both apparently resulting from excessive sexual indulgence. He had not been able to accomplish sexual intercourse for over a year, owing to the impossibility of obtaining sufficiently strong erections. The first injection was made on August 10th at about eleven o'clock in the morning. In a few minutes the pulse had risen in frequency from 78 to 96, and there was marked mental exhilaration. During that night and the following night there were strong erections, and the improvement in the mental condition continued. On August 12th a second injection was made, without apparently increasing the intensity of any of the observed phenomena. On the 14th the third injection was made. Mental exhilaration was still well marked, and repeated erections occurred during the day and night. On the 16th he had sexual intercourse, which he described to me as being entirely satisfactory. There were no further injections. To-day he informs me that there has been a slight decrease in his sexual power, but he attaches very little importance to this fact, as he thinks he has enough in reserve.

CASE IV.—A man, aged thirty-six, with sexual impotence; in other respects apparently in normal condition. Erections have been very feeble with this patient for several years past, although sexual intercourse has not been impossible. The first injection was made on August 10th, with the immediate effect of increasing the frequency of the pulse from 80 to 92. During the day he repeatedly informed me that he had never felt better in his life; that he felt strong and in perfect health. No notable effect, however, was produced upon the sexual organs. On August 12th the second injection was made. Mental exhilaration was not so strongly marked as after the first, though there were some feeble erections during the night. The third injection, on August 14th, was followed by stronger erections. On August 18th the patient had sexual intercourse, the erection being somewhat more vigorous than upon recent occasions. On August 21st the fourth injection was made, and there was sexual intercourse that night, of improved character. No further injections were made in the case of this patient, as he was obliged to return home on the 23d.

CASE V.—A man, aged fifty, suffering from cardiac weakness, nervous dyspepsia, spinal irritation, and general physical debility, with a strong tendency to hypochondria. The first injection was made on August 10th. He experienced at once some degree of cardiac excitement. That afternoon he walked a distance of four miles, a feat he had not been able to accomplish for over a year. There was also a noted improvement in his appearance, and he became altogether more cheerful than he had previously been. The following day his condition still remained improved, the cardiac impulse was stronger, and the pulsations were fifteen fewer in a minute than they had previously been. On August 14th the second injection was made. His physical strength was still markedly better than it had been, as shown by his ability to walk farther and with less fatigue than before being placed under this treatment. His stomach had also got into a greatly improved state, though I do not attribute this entirely to the injections, as on the day that he began taking them I also began washing the stomach out every morning with warm water.

CASE VI.—A man, aged fifty-six, a stone mason by occupa-

tion, had suffered for a year with lumbago, during the greater part of which period he had been unable to work at his trade. On August 4th I made an application of galvanic electricity to the lumbar muscles, with the effect of giving immediate though temporary relief. He came back on the morning of the 5th somewhat improved, but not able to stoop over as he would have to do at his occupation. He received his first injection at about ten o'clock. Within ten minutes he was entirely free from pain and could move his body in any direction, bending his spine backward, forward, and sideways with entire ease and comfort. The next day he went to work at his trade and has remained well ever since.

CASE VII.—A man, aged eighty-three, with hemiplegia, the result of cerebral hæmorrhage two years previously. He had some use of the right arm, but dragged the corresponding leg at every step. The first injection, on August 14th, was followed by immediate improvement in his walking, the right foot being lifted clear of the ground at each step. He returned on the 16th, with the left arm (into which I had made the injection) inflamed and swollen with indications of the formation of a small abscess. The improvement in walking, however, still continues and he says he feels better than he has for a long time. I thought it better for him to take no further injections until the inflamed arm was well, and he has not yet returned.

CASE VIII.—A woman, aged sixty-five, had suffered from melancholia and fixed delusions for three months. The first injection, on August 12th, produced no apparent effect except inflammation at the point of injection, with indications of the formation of an abscess, which, however, did not go on to suppuration.

CASE IX.—A man, aged fifty-four, of good general health, but suffering from muscular rheumatism, chiefly manifested in the lower extremities, causing pain, stiffness, and difficulty of walking, had also slight lumbago. The first injection was made on August 12th. He returned on the 14th and stated that the pains, stiffness, and difficulty of locomotion had entirely gone, and that he felt in better condition than he had for many years past. The second injection was made on that day, and the third on the 16th, but on this occasion, instead of using the liquor prepared as I have described, I, without his knowledge, substituted water. On Sunday, the 18th, he returned and stated that the last injection had done him no good, and that he was not quite so well as when I had last seen him. Without telling him of my proceedings, I gave him an injection of the testicular juice. On the 22d he reappeared with the statement that he was entirely well and that he did not see the necessity of continuing the treatment, and I have not seen him since.

CASE X.—A man, aged sixty, suffering from the effects of excessive mental work and from cardiac asthma. He entered my consulting-room gasping for breath and almost exhausted, though he had walked less than fifty paces. On examination, I found cardiac irregularity and weakness, with a pulse of 96. On August 21st he received the first injection. His heart immediately became stronger and more regular and his pulse fell to 80. The difficulty of breathing disappeared. On the 23d he returned. The heart and respiration were regular; the pulse was 82 and strong. He then received his second injection. To-day, August 26th, I saw him for the third time. He states that his health is good and that he experiences no difficulty in breathing, in walking, or in climbing staircases. At his first visit I prescribed some pills for him, consisting of licorice and magnesia, and impressed upon him the idea that whatever improvement he experienced would come from these pills. He did not know until to-day what the injection was, and he attributed the manifest change in his health to the inert medicine I had prescribed.

It is not necessary for me to draw any conclusion from these experiments, as they speak for themselves. It will be seen that there is evidence to show that we have in the testicular juice a valuable addition to our materia medica, the precise worth of which, however, it is not yet in our power to establish. It is only the sensational newspapers that speak of it as an "elixir of life" or as an agent capable of making an old man permanently young again. It seems to be the chief object of some of these mediums for communicating intelligence to distort the truth, not only by the use of sensational headings printed in large letters of a grossly misleading character, but to misinterpret, misconstrue, and misquote the medical information given them at their solicitation. The venerable originator of the method of treating certain infirmities and diseases to which this paper relates has been abused, not only by an irresponsible press, but by physicians who ought to have exhibited more consideration and decency than they have shown; and they have done this not in the medical journals but in any newspaper to which they could obtain access. If they had had the intelligence and the forethought to be the first to make use of his discovery, we should have had no such exhibitions as we have had during the last few weeks.

One point further seems to call for some consideration. I have observed that some of the experimenters sterilize the testicular juice before using it. If there is any virtue whatever in the liquid, it would be entirely destroyed by such a process. It might as well be boiled as sterilized. Experiments with such a substance are absolutely valueless. Sufficient immunity against the propagation of disease can be obtained by examining the fluid microscopically before it is injected into the system. Whatever is capable of killing the germs of disease would be equally capable of killing the vital germs upon which the testicular juice depends for whatever efficacy it may possess.

In conducting these experiments I have been assisted by Dr. E. L. Tompkins, who made several of the preparations and injections.

SOME UNUSUAL MANIFESTATIONS OF TUBERCULOSIS OF THE LARYNX.*

BY CLARENCE C. RICE, M. D.,
NEW YORK.

THE object of this short paper is simply to cite several cases of laryngeal tuberculosis which have come under my observation during the past year. None of the pathological conditions to be described are entirely unique. In quickly reviewing the vast amount of literature which has been written on laryngeal consumption during the past two years, I have found laryngeal lesions somewhat similar to those observed in my cases described by writers. And these writers are, with few exceptions, members of this association. In fact, it would be difficult to find any subject pertinent to laryngology which can not be found thoroughly treated in the "Transactions" of this society.

It is not altogether an Hibernianism to say that unusual

manifestations of laryngeal tuberculosis are rare, because tuberculosis of the larynx manifests itself with but little variety in pathological conditions. We know where to look for its first appearance; we can predict the mode of its extension; and the stages of its destructive process follow one another with remarkable regularity. It is well to tabulate cases of any disease which present lesions at all unusual, because these are the cases which are somewhat difficult of diagnosis. It would be worse than a waste of time to cite the different opinions and the reasons on account of which they are held at the present time. As to the ætiology and pathology of laryngeal phthisis, we believe that in five years from now there will remain but very few of the minority who to-day think that the name of tuberculous laryngitis does not describe the pathological condition in, we were going to say, all cases of laryngeal disease associated with pulmonary phthisis. The question as to the existence of *primary* tuberculosis has been fully discussed by this association. And we know, too, the opinion of nearly every leading laryngologist as to the curability of laryngeal consumption. In addition to the very truthful description of this disease in Cohen's text-book, published nine years ago, but which requires but little revision to-day, we find in the first volume of the "Transactions" of this association a paper on "Bucco-pharyngeal Tuberculosis," by Bosworth; in the second volume, "Primary Tuberculosis of the Larynx," by Cohen, and "The Therapeutic Value of Rest in Phthisical Laryngitis," by Robinson; while such papers as "Tubercular Ulceration of the Tongue," by Bosworth, "The Progress of Laryngeal Phthisis," by Porter, and "The Laryngeal Affections of Pulmonary Phthisis," by Robinson, are published in the third. In the fifth (1883), "Treatment of Laryngeal Phthisis," by Ingals, and "The Healing of Ulcers in Laryngeal Phthisis," by Jarvis. De Blois cites "Cases of Buccal Tuberculosis" in the sixth report. Robinson contributes a paper on "Alimentation in Laryngeal Phthisis" in the seventh. In the eighth we find a paper by Delavan on "Buccal and Lingual Tuberculosis." At last year's meeting we heard two papers pertinent to the subject—viz., "A Specimen of Stricture of the Larynx with Extensive Cicatrization from a Case of Ulcerative Tuberculosis," by Cohen, and "Residence at Certain High Altitudes as a Means of Cure for Laryngeal Phthisis," by Wagner.

In addition to these, valuable monographs have been published outside the "Transactions" by members of this association. This much and more has this association accomplished in the way of investigating laryngeal tuberculosis. And nothing new can be stated at this meeting.

There is one clinical point relative to laryngeal tuberculosis which I think has received too little attention, and that is the frequency of the active co-existence of tuberculous and syphilitic laryngitis. This is, of course, especially true in hospital and dispensary practice. Many cases of larynx disease which it is difficult by their lesions to classify are combinations of tubercular and syphilitic disease. It is a mistake to try to relegate such cases solely to either one of these diseases. The prognosis will depend upon which one of these two diseases is the more active. Students who ex-

* Read before the American Laryngological Association at its eleventh annual congress.

pect to find the laryngoscopic illustrations of text-books easily corroborated by the laryngeal mirror should be taught the coexistence of tubercular and syphilitic laryngitis, and should consequently expect to find the characteristic laryngoscopic appearances of either of these diseases marked by a case in point:

Mr. F. Y., aged thirty-five, superintendent of a manufactory, came to me in 1886. He had suffered with throat symptoms for six months. Soreness over larynx and pain in swallowing had been excessive for a few weeks at a time, and had then become much less troublesome. One parent had died of pulmonary phthisis. The history pointing to syphilis was obscure, though he had had venereal disease other than gonorrhœa. He had lost twenty pounds in weight, and had a slight cough. His temperature was about 100° F. Slight dullness over one apex and change in quality of respiration. The appearance of the larynx at his first visit is shown in Fig. 1. I was struck with

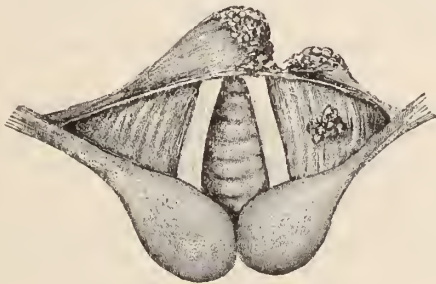


FIG. 1.

the extensive destruction of the epiglottis as compared with the intralaryngeal degeneration. The arytenoids presented the typical semi-œdematous swelling, and there was slight ulceration on both sides of the larynx, but the larynx as a whole presented a much healthier appearance than would have been expected if the destruction of the epiglottis had been occasioned by tubercular infiltration and ulceration. The man, though a little emaciated, seemed to me to have sufficient vitality to recover. None of the tubercular bacilli were found. He was put on increasing doses of the saturated solution of potas. iodid.; the ulcerated surface of the epiglottis was treated with iodoform in ethereal solution every day. The ulceration of the epiglottis was controlled as if by magic, and complete cicatrization took place. The ulceration in the laryngeal cavity also healed, but the arytenoid remained enlarged. His general health improved. The loss of the epiglottis gave him little discomfort. He regained his weight. He remained in good condition for almost a year, when he caught another cold. His cough increased, and in two months his larynx was the seat of a typical ulcerative tuberculous process. These ulcerations were confined to the cavity of the larynx. He lived about six months. There was also rapid degeneration of the lung tissue.

Here undoubtedly was a case where syphilis and tuberculosis were blended. The epiglottis was destroyed by syphilitic ulceration, but the interior of the larynx was tuberculous. The epiglottis was healed by appropriate treatment, but the club-shaped arytenoids remained.

Had the entire process been tuberculous it would have been impossible to control the extensive ulceration of the epiglottis. Deep contractile scar tissue, so characteristic of syphilitic ulcerations, covered the epiglottis. I think this combination of tuberculosis and syphilis is far more common in the larynx than is supposed. Some of the cases of

cure which have been credited to the tuberculous process should, I believe, be placed under the head of syphilis. The results of treatment will in some of these cases of ulcerative laryngitis be the only way of determining the quality of the inflammatory process. A second case, quite similar to the above, I have seen this winter; the same great destruction of the epiglottis was present, but the tubercular indications of the larynx were more marked than in Case I. The effect of appropriate treatment on the syphilitic portion of the lesion is wonderful in these cases, and for a time the physician is almost deceived into the belief that he can heal the larynx, but the tuberculous process soon asserts itself and the end is only shortly delayed.

A second pathological condition which frequently complicates to a small extent the usual laryngoscopic appearances of a tubercular larynx was present in a remarkable degree in a case which I saw one year ago. The pathological condition referred to is the proliferation of the so-called granulation tissue from the bases and edges of the ulcerations of phthisical laryngitis. This condition is fully described by Dr. John N. Mackenzie,* and is called by him one of granular hyperplasia. I believe that he is correct in the impression that this growth from an ulcerated surface "may be regarded as representative of a connection process—as a natural step toward cicatrization." I would go a step further and say that the degree of vitality remaining in the laryngeal structure may be measured by the amount of this granular tissue which nature is able to construct. The most rapidly destructive cases of laryngeal tuberculosis, and consequently those in which the vitality of the tissues has been more markedly impaired by tubercular infiltration, do not—so far as my experience goes—show much tendency toward the formation of connective tissue. The surfaces melt away without any attempt at repair. The rapidity of the pulmonary and laryngeal process may also be measured somewhat by the presence or absence of this tissue. I cite the following case only because the larynx contained so much of this granular tissue:

W. M., a Hebrew, about forty years old, merchant. Previous or family history of little significance. Though of moderate means, he had denied himself proper food and care, and was in impaired general condition when he contracted the cold some eight months before he came to me. His laryngeal symptoms had come on very slowly—only slight pain and tenderness over larynx. Increasing hoarseness and dyspnoea were his most troublesome symptoms. When I first saw him he did not present the general appearance of a phthisical patient, but the look of a person who had had too little nourishing food, together with the anxious facial expression of one suffering from dyspnoea; a moderate amount of cough was present. Slight rise of temperature. Fig. 2 represents the laryngoscopic appearances of the larynx; they were as follows: Epiglottis slightly reddened and thickened, but not ulcerated. Arytenoids moderately enlarged but not typical. The interarytenoid commissure was filled with a papillomatous outgrowth seen frequently in both tuberculous and syphilitic laryngitis. The dyspnoea was found to be partially due to the lack of abductive power of the vocal bands, but more to the blocking of the laryngeal cavity with both granular tissue and tissue which was papillomatous

* Mackenzie, J. N., "Archives of Medicine," vol. viii, p. 108.

in appearance. There was little ulcerated surface to be seen, although the sides of the larynx presented the dull-green appearance common to tuberculous ulceration. From the sides of the larynx above the ventricular bands, from the ventricles themselves, and from the vocal bands proper, there could be seen, not only the small, grayish-red, slightly elevated tissue common to ulcerative laryngitis,⁶ but tissue much more prolific in appearance like that springing from the interarytenoid depression. This latter tissue did not, I believe, grow from an ulcerated surface, but was covered by epithelial elements. The case was demonstrated to a class of students, and I intended to remove portions of the obstructing tissue with forceps, both to relieve the dyspnoea and for examination microscopically. The case fell into other hands at the college two days later, and as a strong solution of nitrate of silver was applied to the larynx-



FIG. 2.

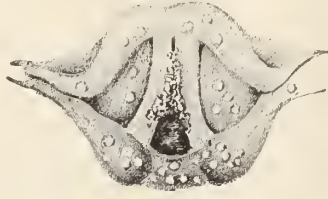


FIG. 3.

geal cavity, the appearances as described above were never again seen. When I next saw the case some months later, it was found that the degeneration of lungs and larynx had progressed rapidly, and the larynx presented the usual appearance of a tuberculous process. I saw him a few times and he then disappeared, and I dare say he died within a short time.

In this larynx there were, I believe, two conditions present—(1) a granular hyperplasia, ingrafted upon an ulcerated surface, and (2) a proliferation of those papillary excrescences which are eminently characteristic of the tuberculous process when they are found upon the interarytenoid fold, and which spring oftentimes from the posterior wall of the larynx and trachea. The presence of tissue ingrafted upon ulcerated laryngitis oftentimes renders the diagnosis somewhat difficult, and the appearance may very much resemble a true growth of the larynx, either benignant or malignant. It will be necessary to weigh all the evidence before deciding upon the nature of the disease.

3. Another pathological condition, and to me an unusual one, was seen in a tuberculous patient who is at present under my care. The condition is pictured in Fig. 3. It represents the larynx as it was first seen by me a month ago. I need only say a word as to his history. A tailor, aged thirty-five, good family history, emaciated, cough, considerable dyspnoea. Evidences of pulmonary degeneration on both sides. The vocal bands were adherent along their anterior half. There was but slight respiratory movement of the vocal bands. This loss of motion was not due to the adhesion, but probably existed before the adhesion, and was one of the factors which rendered this adhesive inflammation possible. The loss of motion was due to the enlarged arytenoids, and also to the proliferation of granular tissue, which the figure does not represent, but which existed both above and below the vocal bands. This sprung from the sides of the larynx, and, jutting into the caliber of the glottis, furnished lateral support for the formation of the web of tissue which held together the vocal bands anterior-

ly. All the conditions were in this case favorable to adhesive inflammation. How long this adhesion had existed I do not know. I found that the tissue was not strong, and could be broken through with an ordinary blunt laryngeal applicator. I have broken it through several times, but the gap soon refills because the vocal bands remain immovable and near together. I have seen and operated upon two cases of syphilitic membranous adhesion of the vocal bands anteriorly. In both the web of tissue was so tough that it could hardly be cut or burned. Cohen * describes and illustrates a somewhat similar case. Speaking of granulations of the larynx, he says that "when occupying both vocal bands, the attrition of the ulcerated surfaces may excite adhesive inflammation, culminating in the formation of an organized web between them." In the particular case cited, he shows the manner of development of that solid web, commencing first from a number of fine membranous bands. And Ingals † speaks of the possibility of adhesive inflammation between the cords resulting from tuberculous ulceration.

This condition must be rare, since phthisical ulcerations show such slight disposition to heal and cicatrize. The very fact that cicatrization is present is a strong argument in favor of a syphilitic process.

Von Ziemssen, ‡ however, treated two cases where the cicatrix could be demonstrated post mortem, but he adds that "it is true that new ulcers generally develop afterward."

Adhesive inflammation in a tuberculous process will rarely if ever be found, unless all the favorable conditions mentioned in my case are present; and even then the bridging across from one vocal band to the other is accomplished more by a filling in of granulation tissue from the sides both above and below the vocal bands, rather than by the formation of a membranous web.

In my case it may become necessary to employ a tracheotomy tube. An O'Dwyer's tube, coated with a gelatinized astringent remedy, might serve the double purpose of dilating the glottis and healing the ulcerations.

I will speak of but one more pathological condition, which I have lately seen in a tuberculous larynx. This condition can hardly be said to be unusual, as it is frequently associated with the ordinary lesions of tuberculosis; but the case to be mentioned is worthy of remark, because this lesion was the only manifestation of disease of the larynx, and because there was some doubt as to the diagnosis.

I saw the case three times in consultation with Dr. H. M. King, who kindly allowed me to manipulate the larynx fully. I obtained the following history:

P. L., Russian Hebrew, aged twenty-nine. In 1886 he swallowed a fish-bone, which fact added to the doubt of diagnosis. In June, 1888, pain in swallowing commenced, followed by hoarseness, increasing dyspnoea, and cough. When I saw him he was but little emaciated or anæmic. His breathing was noisy, and his chief complaint was difficulty in swallowing. I found the condition of the larynx present represented in Fig.

* Cohen, "Diseases of the Throat," etc., p. 505.

† Ingals, "Diseases of the Throat," p. 355.

‡ Von Ziemssen, vol. vii, p. 842.

4. I may add that the swelling involving the left arytenoid was less regularly rounded, somewhat larger, and extended outward more than is pictured by the drawing. The color of the aryte-



FIG. 4.

noid indicated that an active inflammatory condition was going on. I at first thought that it might be an abscess due to the swallowing of the fish-bone. The swelling could be indented deeply by the pressure of a probe. It was somewhat painful to the touch. I punctured the swelling with a laryngeal lancet several times to ascertain if there was pus, but found none. I also scarified it with the object of diminishing the inflammation. All this produced no benefit, but rather increased the pain in swallowing. The size of the swelling remained the same. I had now arrived at the opinion that I was dealing with a tuberculous perichondritis, as syphilis could be excluded, and because there were slight evidences of commencing pulmonary degeneration. As Dr. King left town at this time, the patient visited the various dispensaries, and finally went to the Mount Sinai Hospital, where he was attended by Dr. A. G. Gerster, of New York, who performed a laryngo-pharyngotomy for the removal of the growth. Dr. Gerster has written an instructive account of the case and the operation, which was read before the February meeting of the Laryngological Section of the New York Academy of Medicine, and published in the April 6th number of the "New York Medical Record." I need not describe the steps of the operation. Dr. Gerster says he decided to operate because of the steady growth of the swelling. Tracheotomy above the isthmus was performed on October 19, 1888, and the tampon cannula employed. The growth, involving the left arytenoid and a portion of the posterior extremity of the left vocal band, was freely excised. The tracheal cannula was removed on October 22d, and the external wound sutured. Union of the soft parts was readily obtained, but not of the thyroid and cricoid cartilages, and a fistulous opening remained. A plastic operation for its closure was performed on January 4, 1889, with good success, I believe.

The foregoing is obtained from Dr. Gerster's account. I saw the patient next when he was presented at the academy. He was very much emaciated, and gave every appearance of a person in the last stages of consumption. He died shortly after. I believe there was ulcerative degeneration of the larynx during the last few months. Whether Dr. Gerster supposed the swelling was tubercular in character before the operation I do not know. The microscopical examination of the growth was done by Dr. Cunningham, of the Mount Sinai Hospital, and was as follows:

Several sections were made, and they all exhibited a lymphoid structure with giant cells; tubercle bacilli were present in abundance. Dr. Gerster lays special stress on the fact that this was a localized solitary tumor, the sole manifestation of tubercular disease of the larynx. He does not maintain that the tubercular deposit was primary in the larynx. Dr. King, who saw and examined the patient often, could never satisfy himself that there was any pulmonary

disease until after the operation, and believes that the laryngeal process was primary. I myself believe that deposition of tuberculous material had already taken place in the lungs.

I can not but believe that this was a case of perichondritis of the crico-arytenoid joint, the exciting cause of which was the deposition of tubercle. It seems to me that it is not to be classified with those rare cases of "solitary tubercular tumors" of which Dr. John N. Mackenzie* mentions two cases, the growth being solitary and in the trachea in one and marked by a formation of submucous nodular growths in the laryngeal cavity in the other. Hennig,† of Königsberg, says that aside from one case of solitary tubercular tumor which he reports, only six additional cases could be found in medical literature. In Hennig's case three tumors, which were afterward found to be tubercular, were removed by the thermo-cautery after laryngotomy. Patient died of pulmonary tuberculosis, as demonstrated by post-mortem examination thirty-seven days after the operation.

The interest in *this* case lies in the obscure manner in which the tubercular infection was received and its strictly localized deposition. I can not believe that extirpation of such growths by external laryngeal operation will add to the patient's comfort or prolong his life. The shock and the exhausting effects of the operation, the annoyance of the tracheal cannula, all hasten the pulmonary degeneration. Skillful endolaryngeal treatment, both medical and surgical, will furnish the most benefit to the patient. Illustrative of what can be accomplished by such treatment, I must before closing cite one case more which the association will, I believe, consider of interest. Figure 4 almost exactly represents the case also, except that the tumor involving the left arytenoid was much larger. It occluded nearly the entire glottis, and the dyspnoea, when the man first called at the office, was so dangerous that I forbade his going home and sent him to the hospital. The air could be seen to suck through the larynx at each inspiration. It was agreed, on consultation, to wait until evening, and then do tracheotomy if the dyspnoea continued as urgent. Moist inhalations acted badly and were discontinued; hot compresses on the outside of the neck gave more benefit than cold. The great relief, however, was obtained by the use of a two-percent. solution of cocaine. This was tried with some misgiving, as we feared an increase in the swelling when reaction took place, but there was no reaction, and nearly all the reduction in the size of the swelling obtained by the cocaine was permanent. I learned this clinical point in this case, that it is far safer to employ cocaine in a greatly obstructed larynx, when the swelling is partly oedematous, as it was in this case, than when the swelling is entirely made up of actively congested tissue. In the one the water is driven out not to return, but the expulsion of the blood from the inflamed region can hardly be more than temporary, and the last condition is likely to be worse than the first. The swollen arytenoid was reduced to one third of its size in a

* Mackenzie, Dr. J. N., "Archives of Medicine," vol. viii, p. 109.

† Hennig, "Berliner klinische Wochenschrift," 1888, No. 28.

week. It was then punctured with the galvano-cautery, and by this means was still further reduced in size. It is at present considerably larger than its fellow, but it is not troublesome to the patient. What the character of this swelling is I do not know. I excised a portion of it with a snap guillotine for microscopical examination, but the sections showed only normal elements. I can find no evidence of syphilis. The patient is a very large, stont, flabby man, weighing more than two hundred and fifty pounds, thirty-two years old, complexion a dirty green; no evidence of pulmonary disease can be found. Patient has been a man about town and has drank and smoked to excess. I do not at all advise extirpation of the growth by external incision, neither do I think removal by cutting forceps would be productive of good results. This case, which may be somewhat irrelevant to the subject of this paper, is cited because it so closely resembles the previous case, which was found to be tubercular. The great size of the swelling, the urgency of the dyspnoea, and the beneficial effects of the cocaine, are its interesting features.

"The unusual manifestations of tuberculosis of the larynx" mentioned in this paper are as follows:

1. In those cases where tuberculosis and syphilis coexist, the lesions of one process mask those of the other. The syphilitic ulcerations, even when combined with a tubercular process, are frequently controlled by appropriate treatment, while the phthisical ulcers defy all efforts to heal them.

2. The typical appearances of a tuberculous larynx are sometimes greatly hidden by the proliferation of two varieties of tissue—the one being ordinary granulation tissue springing from an ulcerated surface, and the second a papillomatous growth made up of normal elements, very much resembling the ordinary papilloma of the larynx—and existing, perhaps, as a mere coincidence, but probably occasioned by the chronic inflammatory condition of the larynx.

3. Adhesive inflammation at the anterior ends of the vocal bands may occasionally take place in a tuberculous larynx, but only when such favorable conditions are present as immovable cords and a general proliferation of tissue.

4. The deposition of tubercle may be localized in one arytenoid, giving none of the typical signs, the larynx as a whole remaining perfectly normal in appearance.

A CASE OF SYRINGOMYELIA.*

By HENRY S. UPSON, M. D.,
CLEVELAND, OHIO.

Two problems present themselves for solution in the diagnosis of every case of disease of the nervous system: first, what is the nature of the lesion? second, where is it located?

The first of these questions is the more important one to solve, except in certain cases of brain and spinal-cord disease in which surgical interference is practicable; at the same time we must not forget that in spinal-cord affections an accurate localization may throw great light on the nature

of the lesion, and may, in fact, aside from the rate of progress of the disease, be the only indication to guide us in determining the nature of the disease process.

In locating a lesion in one or another part of the spinal cord, it is necessary to frame a theory which is in accordance with all of the symptoms which are present; in considering the case before us we will follow this plan, and, after bringing out the clinical features of the case, consider what may be deduced from them with certainty and what with probability.

The following is the history given by the patient:

William M., aged thirty-one, box-maker. The patient two years and a half ago began to notice a tired feeling in his legs and pain in the small of his back. About two years ago he fell thirteen feet and struck on his back. He was considerably hurt, but not unconscious, walked home, and was laid up for three weeks. After this he considered himself well, and went to work as usual.

Six months later there began to be manifest a weakness of both legs, rather worse on the right side, with twitchings of the whole limb which were troublesome but not painful. The patient had more or less pain in the back, with pricking and burning sensations in his legs. The feet and legs have swelled very often. There have been no pains or loss of power in the arms. He has had slight frontal headache occasionally. Has never had double vision.

The patient has had gonorrhœa several times, and has had a good deal of retention of urine, which he has drawn with a catheter. The bowels are constipated. There is no abnormality of the sexual function. No history of syphilis. No insanity or other nervous ailments in the family.

On examination, the pupils are equal and react to light, and with accommodation. The face is very slightly deviated to the left, the tongue protruded straight. In hands and arms good muscular power; no anaesthesia. Triceps reflexes fairly marked on both sides. There is considerable loss of power in the lower extremities, especially in the flexors of the legs and feet. The quadriceps extensor is slightly weaker on the left than on the right side. There is a good deal of twitching of the thighs and legs, partly of the fibrillar kind, and also jumpings and jerkings of the whole limb; these seem to be spontaneous, and not to depend on mechanical or reflex irritation; the patient says these jerkings persist sometimes for a half or three quarters of an hour.

The left thigh is somewhat smaller than the right; the legs are of good size and about equal. Right thigh, 19 $\frac{1}{8}$ inches; left thigh, 18 $\frac{5}{8}$ inches; right leg, 12 $\frac{3}{8}$ inches; left leg, 12 $\frac{1}{4}$ inches; giving a difference of an inch and an eighth between the two thighs, and of an eighth of an inch between the two legs. The right knee-jerk is rather weak; the left knee-jerk is absent, even when tried by the Jendrassik method. There is no ankle clonus. The plantar and abdominal reflexes are lively; cremasteric reflex not obtained. All of the muscles of the lower limbs respond well to the faradaic current. With the interrupted galvanic current, KCC > AnCC, and the response is prompt and quick. There is no deformity of the spine, but slight tenderness on pressure over the lower lumbar vertebrae.

Tactile sensibility is slightly diminished in the lower limbs; pinching is appreciated as painful, but not very acutely. Sensitiveness to heat and cold is much blunted in the lower extremities, especially over the back of the right thigh and the right buttock; in the latter area the patient is not at all able to distinguish between hot and cold objects, and even pinching is not recognized as painful, but is confused with impressions of heat

* Read before the Ohio State Medical Society at its forty-fourth annual meeting.

and cold. This area of thermanæsthesia is bounded by a line running about on a level with the upper border of the sacrum, and above this line distinctions between heat, cold, and pinching are prompt and invariably correct. Below the line the patient sometimes hazards a guess, usually an incorrect one, but often says he can not tell. Over the rest of the surface of the lower limbs correct answers are occasionally given, especially if there is a great difference in temperature between the two objects; distinguishing moderate degrees of heat and cold is quite impossible. In making these experiments, test-tubes of equal size were used, filled with hot and cold water respectively, and the patient was not allowed to see the tubes. Urine: amber, acid, 1.027; no albumin; no casts.

We are able in this case to affirm with a good deal of certainty the existence of an organic lesion, from the absence of the knee-jerk, and the nutritive changes which have taken place. The same symptoms enable us to exclude lesion of the brain or of the upper part of the spinal cord as the cause of the paralysis, since loss of power caused by disease in those regions is accompanied by exaggerated reflexes and only slight wasting from disuse. The possibilities are therefore limited to disease of the lumbar portion of the spinal cord and disease of the peripheral nerves of the lower extremities.

We will first attempt to ascertain the location of disease of the spinal cord so situated as to be capable of producing all of the symptoms which we have found to exist. Let us, then, consider the symptoms a little more in detail, and first as to the reflexes, especially the knee-jerk; this takes place in the following way: A tap on the patellar tendon causes an excitation of the sensory nerves, which is carried through the posterior nerve roots to the posterior horns of the gray matter in the cord; it is transmitted thence to the motor cells in the anterior horns, and from there along the motor fibers of the peripheral nerve to the quadriceps muscle, which responds by a contraction.

Omitting now any reference to the question whether the knee-jerk is a real reflex, all authorities are agreed that it is dependent for its existence on the path above described, which is called the reflex arc. Excluding a few cases of irritative lesion of the brain, which may for a short time suppress reflexes by inhibition, a loss of the knee-jerk always means disease at some point in the reflex arc.

When the lesion is situated in the sensory part of the arc, as is the case in locomotor ataxia, the quadriceps muscle is ordinarily not paralyzed. When, on the other hand, the motor part of the arc is affected, the same lesion which causes the loss of reflex causes greater or less diminution in the power of the muscle. This tends to show that in this case a lesion of the cord producing the loss of power must be situated in the motor cells of the anterior horns, or in the anterior nerve roots. This theory is strengthened by the presence of a moderate degree of atrophy, which is regularly indicative of a lesion either of the trophic centers in the anterior horns of gray matter, or in the nerves between those centers and the muscles.

The motor symptoms, then—the wasting, the loss of reflex, the paralysis, as well as the twitching—would all be accounted for by a lesion affecting the large motor-ganglion cells in the anterior horns of the gray matter of the cord.

Another possible explanation is this: that the reflex arc is cut by the disease at a point between the anterior and posterior horns of gray matter, and the paralysis caused by an affection both of the anterior horns and of the pyramidal tracts in the lateral column, which, taking place very slowly, would account for the considerable paralysis without the reaction of degeneration.

The sensory symptoms are somewhat peculiar. What is ordinarily called the sense of touch is made up of the ability to distinguish between four different kinds of impressions—those, namely, of pain; of temperature; tactile sensibility, by which we know the forms of objects; and the so-called muscle sense, by which we appreciate the weight of objects and know the positions of our limbs. Although these appear to be parts of the same function, it has been shown that they are represented in different tracts of the cord, so that one of them may be affected by disease, the others left intact. The sensory paths have not all been made out with certainty, but, according to the latest researches, fibers which convey tactile impressions run in the posterior columns of the cord; those of temperature run, probably, in the gray matter, not far from the central canal, or, at any rate, cross from one side of the cord to the other in this region; the same is true of the fibers which convey impressions of pain; fibers devoted to the muscle sense run in the lateral columns.

In this case the temperature sense is in the most affected area quite abolished; sensibility to painful impressions almost or quite so; tactile sensibility only slightly diminished. To cause these symptoms, a lesion of the cord must be in the gray matter, about or near the central canal, encroaching slightly on the posterior columns. A central lesion, then, invading to a slight extent the adjacent anterior horns of gray matter and lateral and posterior columns, would account for all the symptoms which we have found in this case.

The case presents a greater superficial resemblance to locomotor ataxia than to any other disease of the cord—from the defective gait, the loss of knee-jerk, and swaying when the patient stands with his eyes closed; but, on closer examination, the gait is seen to be not at all the typical one of ataxia; there are not the heel-pound and wild excursions of the legs which are seen in an ataxic of this advanced stage; there is no history of the characteristic lightning pains; and these, with the presence of undoubted paralysis and the peculiar affection of the sensibility, preclude the idea of the case being one of locomotor ataxia.

If it were not for the sensory symptoms the case might very well pass for one of amyotrophic lateral sclerosis; this disease is, however, a purely motor affection.

We have now to consider the possibility of the existence of a lesion of the peripheral nerves of the lower extremities which would account for the symptoms; such a lesion would have to exist on many of the nerve trunks, as the symptoms are quite widespread; such a lesion is, as a matter of fact, usually inflammatory, and is called multiple neuritis. Its causes are many, and the course which the disease runs varies a good deal in individual cases. We may say, in general, that the inflammatory process affects

the motor and sensory filaments of the nerve, and that the result is paralysis with atrophy and anæsthesia in the districts supplied by the affected nerves, giving a clinical picture not very different from the one before us. As a rule, however, the different forms of sensibility are affected about equally, so that when we find a marked loss of the temperature sense without a corresponding diminution in tactile sensibility, we must look for the lesion in the cord, where the paths for these two forms of the sense of touch are separated.

The form of neuritis which is most apt, from its chronic course and the unequal way in which it affects sensibility, to lead to confusion with cases of the kind before us, is that occurring in leprosy; this can, I think, be excluded in this case.

We must suppose, therefore, disease of the central portion of the spinal cord, near the central canal, and extending as far as the motor cells of the anterior horns, and probably involving to a slight extent the lateral and posterior columns. Experience has shown that a slow lesion in this region is almost invariably of the nature of a tumor, composed of a finely reticular structure with scattered cells, of the same appearance as the normal supporting substance of the cord; it is, in fact, a glioma.

The new tissue is soft and highly vascular, and almost always breaks down in part, so as to form one or more cavities, and from this peculiarity the process takes its name of syringomyelia, or cavity formation in the cord.

The cavity may or may not communicate with the central canal, but is never simply an enlargement of the same, as is the case in the condition known as hydromyelus.

Syringomyelia has long been known as a pathological condition, which was usually first recognized at the autopsy. It was a few years ago pointed out by Schultze, of Heidelberg, that many of these cases might be recognized during life. The present case is atypical, in that it affects the lumbar instead of the cervical portion of the cord, but, although the latter is the usual starting point of the disease, cases of its occurrence lower down are by no means unknown. The only case of this affection heretofore put on record in this country was reported by Dr. M. Allen Starr, in the "American Journal of the Medical Sciences" for May, 1888.

The disease is characterized by its long course and the frequent remissions of its symptoms; it is sometimes ascribed to traumatism as a cause, but whether this plays a part in the present case is perhaps an open question; the fall upon the back is at any rate an interesting feature in the history of the case.

No treatment has been discovered which is likely to affect the disease process, although remissions sometimes occur in connection with electrical treatment.

The Mississippi Valley Medical Association.—The fifteenth annual meeting will be held in Evansville, Indiana, on the 10th, 11th, and 12th of September. Those who attend are advised to take receipts for full fare, that they may secure return tickets at one third fare. We learn that the titles of nearly a hundred papers have been received for the programme, and that the meeting promises to be larger than any yet held by the association.

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ALCOHOL IN FEVERS.

THE July "Forum" contains a paper by Dr. Austin Flint on "Late Theories concerning Fever," in which the question of administering alcohol in fever is discussed with frank fairness and simple directness. If querulous sentimentalism could be silenced by the contemplation of facts, and the ideal of the situation be taken as the standard of duty, what Dr. Flint says in regard to the use of alcohol in disease would forever settle all controversy as to its morality or immorality. The fever patient is one who is burning up nutritive material so rapidly that, unless an increased assimilable food-supply is provided, he is quite likely to die of starvation. Sustaining measures are imperative. At work a man needs more heat than in repose, and more food. Although the fever patient does no work, he produces an excessive quantity of heat, and this involves of necessity an oxidation of matter. Food or some oxidizable material must supply this much-needed matter, or else the tissues are consumed. Exactly to the degree that the fever feeds on food is tissue saved and subsequent convalescence promoted. It is, however, the condition of the organs and the capability of assimilation that renders the introduction of food a problem which taxes the judgment and skill of the physician to the utmost. What food? And how administered? This must give us pause. A rational consideration of the subject is possible only from the scientific standpoint. Those who would abolish alcohol from the sick-room must first prove their moral right to risk starving a man because he has the misfortune to fall ill. And these same sentimentalists, with their narrow view of alcohol, cry out against vivisection and abstinence from food for purposes of scientific investigation! O perverse and penny-wise generation!

Dr. Flint's own words deserve to be quoted entire and made a part of every reason-loving mind, be it that of layman or that of physician. The preachment comes home to all who love the truth. It would seem that only willful blindness could fail to see and be convinced. Thus says our author: "In the face of the difficulty which exists in supplying matter for oxidation in the body to feed the exaggerated calorific processes, the use of any agent which will meet this want can not logically be condemned on sentimental grounds alone. Even if alcohol be regarded as a poison, it must be remembered that poisons are often useful in medicine and save life. From a purely scientific point of view, it may be admitted that, in perfect health, alcohol is not useful and is deleterious. As physicians study the poisonous action of certain remedies in learning how to use them with happy effect, so what may be called the physiological effect of alcohol may be studied as a prepara-

tion for its use in disease. The symptoms of alcoholic intoxication are due to certain peculiar effects upon the nerve-centers of actual alcohol circulating in the blood. In perfect health, a very small quantity of alcohol will produce some effect of this kind; but this passes away when the alcohol is eliminated by the breath or otherwise, or when it is oxidized. In certain diseases, particularly in fever, very large quantities are tolerated, and this is because the alcohol is promptly oxidized, and makes no impression, as alcohol, on the nervous system. In disease, as in health, even a slight development of alcoholic intoxication is followed by a reaction more or less injurious." The author goes on to state that certain conditions in fever, and these alone, are indications for the use of alcohol—persistence of high temperature, great feebleness, rapid pulse, etc., showing intense and alarming general depression. The value of the agent depends not upon its stimulating effect on the nervous system, but upon its rapid oxidation. Being promptly taken up by the blood, it requires no preparation by digestion, and is oxidized even more rapidly in fever than in health, supplying material for combustion just in proportion to its oxidation. Thus the normal tissues of the body are saved from degeneration and destruction. "There is a theory," says Dr. Flint, "that the carbohydrates of food are deposited in the liver, discharged into the blood as required, in the form of a substance called glycogen, which is converted into alcohol and then oxidized. There are many strong facts and arguments in favor of this view; and, if it be true, the administration of alcohol in fever is simply the introduction of a carbohydrate in such a form that it can be promptly used in supplying material for heat, the digestion of carbohydrates being difficult and slow. A calculation of the heat value of alcohol shows that one quart of French brandy, when oxidized, produces as many heat-units as a man of ordinary size would make in twenty-four hours. As a matter of actual observation, a quart or even more of brandy has been given in cases of fever in twenty-four hours, without any indications of alcoholic intoxication, and with the effect of actually reducing the temperature."

The possibility of confirmed alcoholism growing out of the use of alcohol in fever naturally suggests itself. The possibility of the morphine, chloral, cocaine, chloroform, or other habit exists whenever and wherever one of these drugs is administered. Yet those who withhold these agents risk the sacrifice of a life now and then—a sacrifice to what the more intelligent portion of the community regards as prejudice. So, too, with alcohol. It would be difficult to find an instance of the alcoholic habit directly and solely due to the use of alcohol in fever. The fact is, drunkards are made in the nursery far oftener than is suspected. The pretty baby that is not taught self-control fails to manifest toughness of fiber when adult life demands it. "The child is father to the man." Greed, efforts for gain out of all proportion to physical strength, overworked ancestors, the desire for oblivion from grief, chagrin, and disappointment, are individual and collective factors that help fill the ranks of all forms of inebriety. Diseases of the will far more than diseases of the body lead to intemperance. Because one whose

unwise parents failed to train him and guide him in baby-days becomes a drunkard and dies a drunkard's death, shall we starve our child because he lies ill of a fever? The sophistry of the argument is apparent when deprived of tin trumpets and all silver-gilt tinsel. Yet such is the reasoning of the sentimentalists—those who don't know—concerning the use of alcohol in disease. However great the pride of science, it sinks into insignificance beside the pride of complaisant ignorance. The physiologist, the chemist, and the philosopher alone are capable of expressing a thoughtful opinion upon the questions of the day, of which the use of alcohol is possibly the most important. Dr. Flint's arguments, based upon the facts of the case, are incontrovertible and merit the most careful consideration of all interested in rational living.

PRIVATE MEDICAL LIBRARIES.

THE books of the average physician are bought to be read and are bought at the time they are needed. An emergency having arisen, as in a case of difficult diagnosis, the necessary book is purchased, read, and laid upon the shelf, perhaps indefinitely. This will not apply to the buying of "systems" and cyclopædic volumes; the motives that lead to the purchase of these have their root in the idea of a possible future need, as well as an intention to give time to some favorite subject coming within their scope. Private libraries of this class are quite apt to be close counterparts of each other, and will be found to be made up largely of the publications that go through several editions. Many times books are bought for the sake of the authors' names, in order to have either a full or a good representation of the works of some favorite writer, rather than from the impulse of a present want. But the consecutive collection of a favorite author's writings is not frequent, for, when this feature is observed in a physician's library, the instinct of the collector is under process of development. The libraries of some show a partiality for journals, complete files being well cared for in sightly binding. Others contain a large proportion of the transactions of societies, along with other annuals. But these are not the average medical library, about which we are now writing. That type of library is void of any tendency to specialized addition, and must be considered, like the contents of advertised lost pocket-books, "of no particular value except to the owner."

Wherever the impulse of collection creeps in, the value of the library to others is enhanced. This is not truer during the lifetime of the collector than after his decease. The library that has few books which other physicians care to borrow has a painful lack of interest and value when the time comes for the disposal of them under the auctioneer's hammer or otherwise. It is mournful to attend the sale of some libraries, where the attendance on the part of the invited ones is extremely limited, where the responses are spiritless and the net results insufficient to meet the cataloguer's bill. An extreme case of this kind occurred quite recently in the rooms of one of the best of our auctioneers; the estate is actually in debt to the auction

house. A librarian of our acquaintance, who misses very few sales of medical effects, says that he has never seen anything but disappointment result from the disposal of the libraries of physicians. Further than that, he is continually compelled to view the disappointment of widows, who come to him for advice as to the best that can be done with "the late doctor's library." In general, the best thing to do with it is to add it to some established medical library.

MINOR PARAGRAPHS.

ETHYLATE OF SODIUM IN HYPERTRICHOSIS.

DR. ARTHUR JAMIESON in the "Practitioner" reports the case of a child who at three months of age had an unusual overgrowth of hair on the face. The hair was dark and in some places fully an inch in length. It grew on the right side to such an extent that, when that side alone was viewed, the observer could not refrain from a comparison of the infant with a Skye terrier. Dr. Jamieson had, before this case came up for treatment, noticed that when he had used ethylate of sodium for the destruction of nævi, the hair in the vicinity touched by an excess of the drug was apt to be killed. He determined to apply this to the face of the child, but he first made some tentative applications to several small hairy moles. These proving satisfactory, the child was anesthetized and the ethylate was rubbed thoroughly over a portion of the hair-covered forehead until the skin took on an orange color. The hair-follicles, at the end of a month, were found destroyed, with a few exceptions here and there, and the skin was white. He again applied the caustic to the side of the face, leaving the parts adjoining the eye untreated until the child was a year old. The later treatment was slow and limited to isolated follicles that had resisted previous applications. The child, now six years old, is reported free from disfigurement as to the parts formerly overrun with hair, and the skin is said to be smooth and clear. Dr. Jamieson has photographs of the child's face, before and after the use of the ethylate, which sustain the title of that substance as an epilatory. He has used it for the removal of hairy moles, and regards it as superior to electrolysis in many ways. He has found that it removes the discoloration of the skin, besides destroying the hairs, which has not occurred in his practice under any other plan of treatment.

HAY FEVER AND MENTHOL.

Two recent communications to the "Lancet" have pointed out the dangers of the continued use of cocaine in hay fever, in respect of the formation of the cocaine habit. One was by Dr. F. de Havilland Hall and the other by Mr. William Hill. The latter has had occasion to resort to the use of menthol, locally applied, for the coryza vaso-motora in cases where the addiction to cocaine has been established, and he believes that he has found in it an efficient and unobjectionable substitute. He says: "I think we possess in menthol an antiseptic remedy sufficiently resembling cocaine in its anæsthetic and astringent action, and having none of its disadvantages. A Cornish patient of mine, who has been prevented coming for a reapplication of the galvano-cantery, which has hitherto relieved only for a season, has written me to say that he would not be without menthol for worlds, and that he much preferred it to cocaine." Mr. Hill's method is in the use of a 10- to 20-per-cent. solution of menthol in olive oil or almond oil, to be applied to the sensitive area of the nasal mucous membrane in coarse spray or with a brush. He thinks it possible that in the asthmatic varieties of hay fever

the distress may be relieved by insufflations of a strong solution in oil. The drug has been used with success in severe asthmatic attacks, not due to the hay-fever complication, by means of inhalations from the surface of a 20-per-cent. solution. The action is said to be prompt in the relief of bronchial spasm, and one patient stated that the medicine produced a feeling in the head resembling that caused by the inhalation of a few drops of chloroform.

PSEUDO-ACTINOMYCOSIS.

DR. FEDOR A. LOESCH has given the name pseudo-actinomycosis to a condition observed by him in seven out of thirty-seven consecutive cases of pulmonary disease, the sputa of which he examined microscopically. His report is given in the "Transactions of the Third General Convention of Russian Medical Men at St. Petersburg," 1889. In these seven cases he found peculiar colorless and pale-yellow bodies resembling the grains found in actinomycosis, the resemblance being found both in their conformation and in their action under chemicals. The sputa in which he observed these grains contained also the bacilli of tuberculosis and elastic fibers. A closer examination proved that the grains were crystalline concretions of a substance allied to leucine. In every case save one where these pseudo-actinomycotic bodies have been found they have been associated with the tubercle bacillus, and there is a strong presumption that they will prove to be a degeneration from that organism. The point of diagnostic difference between the true and false bodies is seen when pressure is applied between two cover-glasses. The false grains break up under this compression into a shapeless detritus, while the true actinomycotic grain is spread out into a bundle of dichotomizing threads; the false grains differ from the genuine in being smaller and in having no central filamentous structure. Professor Afanasieff, of St. Petersburg, has accepted the chief propositions of Loesch in regard to these grains.

THE TENTH INTERNATIONAL MEDICAL CONGRESS.

PROFESSOR VON BERGMANN, Professor Virchow, and Professor Waldeyer give notice that, according to the resolution passed at the Washington meeting, September 9, 1887, the Tenth International Medical Congress will be held in Berlin. The Congress will be opened on the 4th and closed on the 9th of August, 1890. Detailed information as to the order of proceedings will be issued after the meeting of the delegates of the German Medical Faculties and Medical Societies at Heidelberg, on the 17th of September of the current year. Meanwhile they ask us to make this communication known in medical circles and add at the same time their cordial invitation to the Congress.

A NEW KIND OF COTTON.

A BAD slip of the pen must have occurred in the writing of the following: "Soft corns are best treated by taking away pressure by means of the introduction of cotton wool—that directly off the sheep being the best—between the toes, and the use of some dry powder, etc." The "Montreal Medical Journal" says that this paragraph occurs in a "standard surgical text-book, well known in the neighborhood of Guy's Hospital."

CIRCUMCISION AND HEREDITY.

DR. LEVY, a dentist of Stettin, has written to the editor of the "Archiv für pathologische Anatomie und Physiologie und für klinische Medizin" an account of some occurrences in his

own family that have a bearing, he thinks, on a question raised by Professor Weismann at the sixty-first *Versammlung deutscher Naturforscher und Aerzte*—that of the hereditary transmission of acquired peculiarities, such as the lack of a foreskin in Jews. He states that, like his father before him, he was born without a foreskin—as he expresses it, “regelrecht beschnitten”—furthermore, that this was the case with his four brothers also, who died in childhood. An occasional natural Apella is to be met with among Gentiles, but this, of course, raises no question of heredity; such a group of them as Dr. Levy’s communication mentions is a different matter, however, although not a very convincing evidence of evolution.

THE HIGH COST OF FIELD SURGERY.

PROFESSOR GOLDWIN SMITH propounds the theory that one of the great checks to war in the future will be found in the costly nature of modern surgical field-service. In the Austrian armies during the last century there were very few surgeons. “The medical and hospital arrangements of the Federals in the Civil War were of the costliest and most perfect kind.” The humane, “democratic conscience” of these times demands an outlay for the non-combatant part of the business of war which will discourage pugnacity and make for peace. In other words, the higher the development of military surgery, the less war will there be. Professor Smith’s paper may be found in “Macmillan’s Magazine” for July.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending August 27, 1889:

DISEASES.	Week ending Aug. 20.		Week ending Aug. 27.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	29	12	91	16
Scarlet fever.....	42	1	28	1
Cerebro-spinal meningitis....	1	1	2	2
Measles.....	27	1	17	3
Diphtheria.....	79	19	70	19

Faculty Changes.—Dr. J. Richard Taylor, a graduate of the Medical Department of the University of Pennsylvania, of the class of 1878, has been elected to the chair of pathology, practice of medicine, and clinical medicine in the Medical College of the State of South Carolina, at Charleston, to succeed Dr. John Guitéras, who has resigned in order to accept the chair of pathology at the University of Pennsylvania.

The New York Polyclinic.—The annual announcement shows an attendance for the session of 1888-’89 of 383 physicians, making since 1882 a total of 1,883. These figures demonstrate beyond all doubt the popularity of the Polyclinic system of instruction. The most important feature of this year’s catalogue is the Polyclinic Hospital. By the enlargement of their property the faculty have established an extensive hospital, which will afford at all times ample material for all clinical purposes. The Polyclinic and hospital buildings have been completely fitted out with all the modern appliances conducive to the healthfulness and comfort of the patients and physicians in attendance. The session of 1889-’90 will open on Monday, September 16th.

Changes of Address.—Dr. Henry C. Coe and Dr. G. A. Kletzsch, to No. 27 East Sixty-fourth Street.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending August 24, 1889:*

- SCOFIELD, W. K., Medical Inspector. Detached from the Lancaster.
- HIBBETT, C. T., Passed Assistant Surgeon. Detached from the Lancaster.
- WHITE, C. H., Medical Inspector. Ordered to the Pensacola.
- HESLER, F. A., Passed Assistant Surgeon. Ordered to the Pensacola.
- CURTIS, L. W., Passed Assistant Surgeon. Ordered to the New Hampshire.
- JONES, W. H., Surgeon. Detached from the Pensacola and placed on waiting orders.
- VON WEDEKIND, L., Assistant Surgeon. Detached from the New Hampshire, and ordered to the Pensacola.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the two weeks ending August 24, 1889:*

- LONG, W. H., Surgeon. To proceed to Gallipolis, Ohio, as inspector. August 7, 1889.
- WHITE, J. H., Passed Assistant Surgeon. Granted leave of absence for thirty days, on account of wound. August 16, 1889.
- CONDUCT, A. W., Assistant Surgeon. Detached from Revenue Bark Chase and ordered to Louisville, Ky., for temporary duty. August 19, 1889.
- GROENEVELT, J. F., Assistant Surgeon. Ordered to South Atlantic Quarantine Station for temporary duty. August 8, 1889.

Society Meetings for the Coming Week:

- MONDAY, *September 2d:* Medico-surgical Society of German Physicians; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society.
- TUESDAY, *September 3d:* Medical Society of Virginia (first day—Roanoke); Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Franklin (quarterly) and Niagara (Lockport), N. Y.; Hudson, N. J., County Medical Society (Jersey City); Androsoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.
- WEDNESDAY, *September 4th:* Medical Society of Virginia (second day); Medical Society of the County of Richmond (Stapleton), N. Y.; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Bridgeport, Conn., Medical Association.
- THURSDAY, *September 5th:* Medical Society of Virginia (third day); New York Academy of Medicine; Society of Physicians of the Village of Canandaigua; Obstetrical Society of Philadelphia.
- FRIDAY, *September 6th:* Practitioners’ Society of New York (private); Baltimore Clinical Society.
- SATURDAY, *September 7th:* Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller’s River, Mass., Medical Society.

Letters to the Editor.

ROTTER'S SOLUTION.

34 EAST THIRTY-THIRD STREET, August 21, 1889.

To the Editor of the New York Medical Journal:

SIR: In a recent number of the Journal mention is made of a solution recommended by Rotter for use in operations and dressings in place of solutions of the bichloride of mercury. A brief account of my experience with it may save some of your readers from disappointment and perhaps from serious reverses.

Rotter's first publication was made in September, 1888, in the "Centralblatt für Chirurgie." I made a note of it, and laid it aside for corroboration. In January, 1889, he printed in the same journal a second paper, stating that the solutions, the "weak" and the "strong," had proved so successful clinically and so powerful that the "strong" had been entirely abandoned in favor of the "weak," which contained neither carbolic acid nor corrosive sublimate. In June I learned that Schede was using the weak solution and was satisfied with it. Thereupon I abandoned the use of carbolic-acid and sublimate solutions (to which there are certain theoretical and practical objections) at the Chambers Street and New York Hospitals, and for the past six weeks have used in their place the weak Rotter solution. It has brought disappointment; suppuration has been more frequent, sponges are more difficult to clean during an operation, and instruments have been discolored. Finally, experiments made by Dr. Ferguson at the laboratory of the New York Hospital to determine its antiseptic power indicate that it is far weaker than is maintained by Dr. Rotter. I can explain Schede's success with it only on the supposition that his associated antiseptic measures are so efficient that the strength of the solution used for irrigation is unimportant.

After this short flight afield in the company of an attractive but deceitful stranger, I have gladly returned to the quiet and security of old acquaintance. LEWIS A. STIMSON, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

Meeting of March 15, 1889.

Dr. A. B. JUDSON in the Chair.

Cicatricial Contraction of the Fingers.—Dr. A. M. PHELPS presented a patient on whom he had operated four weeks before for restoration of motion to the fingers, which had been flexed in the palm by a cicatrix in the wrist of eight years' standing. He had freed each tendon from the cicatricial tissue and had secured healing by blood-clot, with the hope that new sheaths would be formed in the clot. The wound had been dressed antiseptically, and the first dressing had been changed at the end of three weeks. The prospect of recovery of motion was good.

Dr. R. H. SAYRE said that Paget had long ago recognized the organization of blood-clot after subcutaneous tenotomy. The case presented by Dr. Phelps showed that advantage could be taken of it after open incision under antiseptis.

Hysterical Equino-varus.—Dr. N. M. SHAFFER presented a patient, a girl of twelve years, who had been affected for ten

weeks with hysterical equino-varus and rhythmical movements of the left foot. The talipes had been reducible manually, but the motions had been persistent. There was inability to walk, the result of the disability of the quadriceps extensor group. Before she had come under Dr. Shaffer's observation, plaster of Paris had been applied to the limb for several weeks, but without benefit.

The CHAIRMAN thought that choreic elements were seen when the patient attempted to walk. He recalled a case of rhythmical myoclonus reported by Dr. Peckham in the "Archives of Medicine" in 1883, in which the patient had been subjected to a great variety of treatment, and had finally recovered after the hypodermatic use of atropine.

Dr. S. KETCH suggested treatment by hypnotism.

Dr. R. H. SAYRE thought that the case illustrated the fact that abnormal muscular contraction would produce degrees of deformity as marked as those caused by bony distortion.

Dr. L. W. HUBBARD thought the case allied to chorea, being the result of nerve irritation or exhaustion. He suggested absolute rest or recumbency for a long period with efforts to improve the nutrition.

Dr. A. S. HUNTER had treated with success a case of hysterical hip by the administration of ignatia. The use of this drug in a number of cases of the kind had led him to value it highly when the disturbance was limited to groups of muscles only; but he thought it was of little value in the treatment of general choreic conditions.

Dr. V. P. GIBNEY had had a favorable effect in a case of rotary spasm of the neck from the use of the fluid extract of gelsemium, given in five-minim doses and pushed almost to toxic effects.

Dr. H. W. BERG said that the contraction in the case shown could not be due to nerve lesion, because it yielded so readily to manual replacement. Where there was irritation of motor nerves, as in spastic paralysis, it was extremely difficult to reduce the limb to a proper position. He suggested the ordinary treatment of chorea with electricity to make an impression on the mind rather than on the nerves.

The Management of Hip-joint Disease from an Anatomical Basis.—The paper of the evening was read by Dr. PHELPS, who believed, in regard to the pathology of hip disease, that it was a local tuberculous affection, due to accidental inoculation, and not to a constitutional or strumous condition. Following Volkmann, Albert, and König, he believed that the inflammation, at first simple, became tubercular by inoculation, and then purulent. The irritation of the peripheral extremities of the nerves in or about the joint produced muscular spasm, which in turn distorted the joint by trauma, aided by the bacilli of tuberculosis. In regard to treatment, he relied on mechanical treatment, believing that if we immobilized a joint and removed the intra-articular pressure, Nature would take care of the tuberculous material. His experiments on dogs had convinced him that immobilization of healthy joints did not produce ankylosis. Encouraging motion in an inflamed joint was a violation of the surgical law that an inflamed part required rest. He believed that the muscular spasm, which was a most serious element of destruction, should be overcome by extension, and that, while extension was necessary to secure immobilization, it was not sufficient by itself. He therefore resorted to a combination of extension and fixation, the extension always to be in a line corresponding to the axis of the neck of the femur.

Treatment, as a rule, should be begun in bed, extension being made in two directions—*i. e.*, toward the foot-board and laterally, the body and the sound leg being fixed to a long splint extending to the axilla. If the deformity did not yield to exten-

sion properly applied, the tissues at fault should be divided subcutaneously or by open incision. Abscesses were to be incised through their entire length, and thoroughly scooped out and washed, strict antiseptic precautions being observed. Distension of the capsule should be relieved by aspiration or incision; then traction would not produce pain.

He exhibited a patient in a portable bed, which was an ingenious substitute for the wire cuirass, made with a board cut in an outline of the body and plaster of Paris. The child was laid on the board, and then the whole was enveloped with plaster-of-Paris bandages from the foot to the axilla. The plaster was then cut away in front, the interior comfortably padded, and the patient held in place by lacings or bandages. Extension and fixation in bed were to be continued until the active symptoms and the deformity had entirely disappeared, and the spasm of the muscles was no longer present. Adults were then given crutches, and a portable splint which had a perineal crutch, extension by adhesive plaster, an abduction bar, and an upper (thoracic) ring to prevent flexion and extension at the hip. Children, after treatment in bed, were to have the portable bed, and then the portable splint, with or without the high shoe and crutches.

Dr. J. RIDLON was much pleased to hear the author of the paper take the ground that hip cases should be cured without deformity. He recalled the case of a patient in whom the muscular spasm had been relieved by pinching the muscle. The child had been very thin, and it had been found that, when the adductors were separated from the other muscles and the belly of the muscle was pinched, without any attempt at fixation, there had been as much relief as could have been afforded by lateral traction.

Dr. SHAFFER said that the paper had suggested to him the importance of separating in our minds the disease from the deformity. It was a question how far we were justified in meddling with the deformity, which was simply an expression or, so to speak, a symptom of the disease. In his experience, attempts at speedy reduction of the deformity had been followed by disastrous results. Nature gave a very positive indication in the acquired position of the thigh—that in which the immobilization reached its maximum, and the diseased parts received the greatest relief from reflex muscular spasm. If we forcibly interfered with this effort on the part of Nature, we inflicted a distinct traumatism.

On the threshold of treatment the important question was, not whether traction was to be made in the line of the shaft or the neck, but how to secure an artificial immobilization in the position Nature assumed as the one that afforded the most protection to the inflamed parts. He believed that if the joint were protected from traumatism—in other words, if traumatic contact of the inflamed joint surfaces was removed, and this could readily be done by the use of portative apparatus without entailing immobilization of the entire body from the head down—the joint was placed in the best known local condition. The portative-traction treatment was compatible with fresh air, sunlight, and moderate exercise, which were the best means of combating the tubercular disease and the tubercular diathesis. More lives had been saved and better results had been thus secured than by any other method which had been thoroughly tested.

Dr. R. H. SAYRE agreed with Dr. Shaffer as to the importance of maintaining the general health and the inadvisability of general immobilization of the body if the diseased joint could be controlled without it. He thought that complete immobilization of the hip joint in young children was very difficult to secure, and that the movement that stopped short of producing muscular spasm and pain was not harmful. For poor children

particularly he thought the portable bed was an admirable contrivance. The relief obtained in some cases by pinching the muscle could be explained on the supposition that it stopped the reflex action of the muscle. It was known that firm constriction of the belly of a muscle would, in certain cases, abolish spasm.

Dr. CHARLES L. SCUDDER, of Boston, advocated a more frequent resort to the results of experiment on the cadaver. He recalled Dr. Bradford's experiments made in 1880, in which it had been found that in an adult a force of one hundred pounds had not been sufficient to separate the head of the femur from the socket, while in the shallow and not yet completely ossified acetabulum of a young child a moderate force had caused separation, and still less force had been required in the fœtus. Dr. Scudder believed that in hip disease of children a tractive force of from three to five pounds would separate the joint surfaces, as had been illustrated at the Children's Hospital in Boston in the case of a young boy who had had hip disease and night cries. The joint cavity was opened and a small quantity of pus let out. While the boy was under ether, it was found that traction made with the hand separated the joint surfaces to such an extent that the finger could be placed between the head of the femur and the acetabulum.

Dr. HUBBARD thought that no one at the present time held the opinion that ankylosis was caused by immobilizing a joint affected with chronic inflammation. He had found it difficult to get ankylosis in cases where it was desirable, as in disease of the knee. The first object was to give rest to the joint, which was best done by traction; not to separate the surfaces, but to overcome articular pressure which led to muscular spasm. He believed the long hip splint gave sufficient immobilization for all practical purposes. It was more easily managed than the portable bed of Dr. Phelps, which from neglect would be likely to cause excoriations. As the disease seemed to be a struggle between the tubercle bacilli and the vitality of the organism, he thought it especially important to place the system in the best possible condition to resist attack. He had rarely seen constitutional disturbance from abscesses which had been let alone, although in exceptional cases acute and painful conditions were certainly greatly relieved by surgical interference.

The CHAIRMAN commended the title of the paper. It was an admission that hip disease was not to be cured by treatment, but so managed that the almost inevitable recovery by natural processes should be with the minimum of disability and deformity. He thought that more emphasis should be placed on the importance of protecting the joint from the traumatism of standing and walking, as was done by the use of Hutchison's extra long crutches and high sole on the sound foot. But in every case there were long periods of exemption from pain, when this simple apparatus could be discarded. The ischiadic or perineal crutch of the hip splint, however, could not be willfully discarded; and when it was seen that the rack and pinion not only furnished traction, but also a convenient means of adjusting the length of the upright, the hip splint appeared to come very near perfection as an instrument for the management of hip disease. He had never recognized either the trauma said to be caused by reflex muscular contraction or the alleged mechanical counteraction of the muscles by traction. He believed, and had always held, that the hip splint mitigated reflex muscular contraction by allaying the inflammation which gave rise to it. This it did by arrest of motion and prevention of pressure—motion being arrested by traction brought about by the use of the key, and pressure being averted by the perineal or ischiadic crutch, which made the limb a pendent member. As the inflammation was resolved, the reflex muscular contraction ceased.

The last annual report of one of our orthopædic institutions contained a table from which it appeared that there had been under treatment 371 cases of disease in the hip, 6 in the shoulder, 85 in the knee, 3 in the elbow, 27 in the ankle, and 5 in the wrist—an aggregate of 483 in the lower and 14 in the upper extremity. Should we draw the inference that the incipient osteitic focus was found only or chiefly in the cancellous tissue of the lower extremity, or that a focus in the upper extremity more readily underwent resolution by reason of its comparative exemption from violence? If the latter view was correct, it followed that the limb was to be made a pendent member by the persistent use of the axillary or ischiadic crutch at the earliest recognition of the disease. In some cases an early diagnosis might be facilitated by the following simple method: Let the patient sit on a table, with the legs hanging and the knees separated; in this position, swinging the leg laterally was possible only with rotation of the femur; and if one leg oscillated in a smaller arc than the other it induced or confirmed a suspicion of the integrity of the joint.

He did not believe in treating abscesses and sinuses excepting indirectly through the general and local management of the bone disease in which they had their origin.

Dr. GIBNEY was in favor of securing absolute immobilization, but sometimes he would rather have less perfect immobilization, if by so doing he could secure a change of air and climate, with the consequent improvement in the general nutrition. Ordinary hip disease was managed satisfactorily with the portable traction splint, with or without the rack and pinion; and he had been agreeably surprised at the facility with which these patients ran around in the tenement houses. They came to his clinic only every three or four weeks for adjustment of the apparatus, and during the intervals engaged in the most active sports; they certainly did not lie in bed in dark rooms and die of pyæmia. It was unsafe to put these children in an appliance like a cuirass or the portable bed, unless one was certain of being able to see and attend to them at short intervals. It had been his lot to see cases in which he had been unable at times to obtain proper co-operation on the part of the patient's family. He had often seen abscesses burrowing up to the spinal column and down to the knee, and such cases seemed to baffle even attempts at surgical interference. We must be guided a good deal by circumstances, and if we could protect the hips from trauma and give the patient the benefit of outdoor exercise, abscesses would generally be insignificant. He believed in correcting the deformity speedily, if necessary by dividing tendons and bone under an anæsthetic, for by so doing we saved much time and lost nothing. In regard to aspirating a joint overdistended with fluid, it was almost impossible to diagnosticate an overdistended hip joint. The position of the limb did not depend on the quantity of fluid in the joint, but was due to reflex spasm and the efforts made by the child and Nature to secure fixation.

Dr. J. H. GIRDNER described an experiment on the cadaver in which great force had been applied without separating the surfaces of the hip joint. He also cited a case in which it had been necessary to keep the hand applied to the face for nine weeks in the course of healing after a plastic operation on the nose. At the end of this time there had been no limitation in the motions of the elbow and wrist.]

Dr. KETCH believed that hip disease was so often characterized by exacerbations that all attempts at a division into stages were of no practical value. He thought that the hip splint could often be of use for the reduction of deformities, even in those periods when the patient was confined to his bed. In general, he believed it was a great mistake to make use of any apparatus which could be entirely left to the care of the patient

or family for long periods. The explanation of the relief of pain by compression of muscles was to be found in an involuntary action on the part of the patient which secured fixation and traction at the same time.

Dr. BERG, speaking from the standpoint of the general practitioner, who frequently saw children in the very beginning of hip disease, related the histories of three patients who had presented the symptoms of early hip-joint disease, and yet had recovered perfectly after rest in bed for a few weeks. He now insisted on all such patients remaining in bed for several weeks before commencing any other treatment.

Dr. PUELLS, in closing the discussion, said that many cases in tenement houses, whether treated by the long traction splint or by the portable bed, were deplorably neglected; but this did not argue against the use of either apparatus; it simply illustrated one of the difficulties with which all practitioners had to contend. He valued the portable bed because he desired immobilization of the affected joint, and this could not be obtained with splints having joints in them and not including the trunk. He could relieve his patients better in bed during the period of deformity, and so adopted this method of treatment. He had seen patients in England who had been in bed for several years, and were still in excellent health. He did not, however, advocate prolonged bed treatment. Believing that the cases in question were inoculations of the *Bacillus tuberculosis* on a previously inflamed surface, and not instances of constitutional tuberculosis, he explained the frequency of tubercular joint diseases in the lower extremity by the statement that the joints of the lower extremities, being more subject to traumatic inflammation, furnished good ground in which the bacillus of tuberculosis could more readily reproduce itself. He had presented his honest convictions, and hoped to report his cases hereafter in such a way that others could disprove his statements or he could substantiate his views.

Book Notices.

Cyclopædia of the Diseases of Children, Medical and Surgical.

The Articles written especially for the Work by American, British, and Canadian Authors. Edited by JOHN M. KEATING, M. D. Vol. I. Illustrated. Philadelphia: J. B. Lippincott Company, 1889. Pp. xiii-992. [Price, \$5.]

If the first volume is to be regarded as an earnest of the general character of the complete work, the subscriber for the "Cyclopædia" need entertain no misgivings as to the wisdom of his investment. The plan of the work is to combine in a systematic treatise the medicine and surgery of pædiatrics as well as certain specialties and general subjects relative to the conditions of childhood and adolescence. This is accomplished by collecting a number of monographs by authors well known as teachers and as contributors to the literature of pædiatrics. Also it is proposed that these articles shall reflect the views of the authors, in order that many confusing elements may be eliminated, and that the discussion of mooted points may not interfere with the practical treatment of the subject in hand.

The first volume affords a good example of the excellence of this plan. The several articles treating of the anatomy, physiology, and hygiene of infancy, childhood, and puberty, and of the fevers, miasmatic diseases, diagnosis, and therapeutics of the same periods of life, are concise, practical, and brief. Embryology and bacteriology, as well as the relation of race

and maternal impressions on the fœtus, are among the subjects included in its contents as collateral to the main subject. The condensed character of the several articles is truly refreshing to the reader when he is engaged in prospecting for a little information as to a minor point of diagnostic value or one of treatment. He has been accustomed to force his way through a thick chaparral of tangled verbosity which deals with ancient history, unimportant discussions of immaterial questions, and the relation of jejune theories, in his search for the location of the places he hopes to find—but never succeeds in the finding—when he has consulted one of the ordinary medical cyclopædias; and the marked departure from the conventional type presented by this work will, in itself, entitle it to the highest degree *cum summa laude* as a work of reference, as far as his estimation is concerned.

The individual articles present but little that deserves criticism; and even that is so effectually sheltered by the protecting wing of the general good character of the book that carping comment is unable to reach it. The task which has been undertaken by the editor and his collaborators is no light one, but they have made a beginning that is indicative of a brilliant success, and the prediction that a valuable addition to medical literature will crown their efforts in this instance requires no exercise or possession of occult power. With no desire to bestow fulsome praise, we pronounce it to be the best work of its kind we have ever seen.

The Diagnosis and Treatment of Extra-uterine Pregnancy. By JOHN STRAHAN, M. D., M. Ch., M. A. O. (Royal University of Ireland), etc. Jenks Prize Essay of the College of Physicians of Philadelphia. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 134. [Price, \$1.50.]

THERE is no subject which has so engrossed the minds of gynæcologists and obstetricians during the past two or three years as this one has, and it is safe to say that no pathological problem is more formidable as to its results and its complications. It was to be expected that the Jenks prize essay committee, in giving out this subject, would elicit much valuable information, and the author of this essay is to be congratulated that his was found the most worthy of the seven which were offered in competition. We should criticise its repetitions and its want of finish but for the statement that is made that there was no opportunity for revision of proof, but even with this allowance we feel that it should have been reviewed with more care before it was sent to the committee. As a matter of fact, while the literature of the subject has been searched with commendable thoroughness, nothing new or original is offered as to either diagnosis or treatment. Tait's views, as expressed in his recent work on "Ectopic Pregnancy," are accepted almost without question, although the author states (p. 24) that he "does not slavishly follow whatever he (Tait) may say, unless he is well supported by himself or others," and *his* views are based almost entirely upon his own experience and practice (large, it is true) upon this subject. But even so extensive an experience as that of seventy-nine cases can not prove everything in regard to the pathology of this condition, or at least we believe it does not, as Tait with no little dogmatism would seem to insist.

Take, for example, the point which Tait insists upon—that all extra-uterine pregnancies must be primarily tubal (with the bare possibility only of ovario-tubal pregnancy); the cases of Chambers and Maticki (and we know of one other), in which the tubes showed no evidence of rupture by scar or otherwise—and it is hardly a satisfactory statement which the author, following Tait, adduces, that "either the tubes were not properly examined, or, if they really were intact, rupture must have occurred very early and contraction and healing had been very

complete" (p. 40). Why should the Falloppian tubes form an exception to the fact that nature leaves the traces of repair in injured tissues? Again, why should we be expected to believe that a fetus is so quickly *digested* after tubal rupture has taken place that an operation within a few days or hours of the accident reveals nothing but a mass of blood clots? We do not wish to detract from Tait's transcendent ability as an operator, nor from the enormous impetus which his work has given to abdominal surgery, but we are unwilling to accept without question his line of reasoning in some particulars, notably in the foregoing, and to the same extent must differ with his disciple whose essay is under consideration. It is one thing to have a theory; it is another to bend observations to fit that theory; and more than one brilliant man has perpetrated this fallacy.

Though the essay contains no original suggestions, it is not without merit and is to be recommended for consultation to those who wish to become acquainted with the present status of the subject as it is viewed by Tait. It is needless to say that no sympathy is expressed with the electrical treatment of extra-uterine gestation, and with good reason, we believe.

With all deference to the high authorities who advocate this treatment, it is not improbable that the day is near when it will become obsolete.

Outlines of Lectures on Physiology, with an Introductory Chapter on General Biology, and an Appendix containing Laboratory Exercises in Practical Physiology. By T. WESLEY MILLS, M. A., M. D., L. R. C. P. Eng., Professor of Physiology, McGill University, Montreal. Montreal: W. Drysdale & Co., 1886. Pp. 5 to 200.

"Do not step into the domain of one's soul" is a common Russian expression, hinting at the fact that there is always something that one is desirous to keep for himself. This is the thought brought forth by reading this valuable and original little book, proving an exception to the saying mentioned. While it is in the main a skeleton of lectures on physiology, the book contains some paragraphs of full definitions and explanations, thus showing where difficulty arises for even competent and eminent lecturers—a point that one is not always willing to display. The author fully deserves, on the part of advanced students and especially on the part of those whose work it is to teach students, the most profound thanks for his liberal views in publishing the outlines of his lectures. It is much to be desired that other lecturers should follow the same example.

Hand-book of Physiology. By W. MORRANT BAKER, F. R. C. S., Surgeon to St. Bartholomew's Hospital, etc., and VINCENT DORMER HARRIS, M. D. Lond., Fellow of the Royal College of Physicians, etc. Twelfth Edition. Rearranged, revised, and rewritten, and with Five Hundred Illustrations. New York: William Wood & Company, 1889. Pp. xi-784. [Kirke's "Hand-book of Physiology."]

It is much to convince beginners in physiology of the complexity of the physiology of the human organism, and, by bringing face to face the physiology of such an organism and that of simple protoplasm, to demonstrate that there is no more mystery in the former than in the latter. For the scope of a text-book this object is fully accomplished in the work. The first chapter, treating of the phenomena of light, is of necessity followed by the study of the structure of the elementary tissues, and the structure and function of the blood, and the succeeding chapters are elaborately arranged in such a manner as to present a continuous and rational study of the various physiological phenomena as they are dependent upon each other. While it is sprinkled with the numerous new facts and theories of the last few years

the text retains the character of having been written by a faithful and devoted teacher. The section on the blood is most fully dwelt upon and in accordance with the latest knowledge; and among the numerous illustrations in the text those of Gowers's hæmatocytometer and Ludwig's mercurial pump are worthy of notice. The text is closed by a very readable section "On the Relation of Life to Other Forces," revised by Mr. Baker.

Materia Medica and Therapeutics, for Physicians and Students.

By JOHN B. BIDDLE, M. D., late Professor of Materia Medica and General Therapeutics in the Jefferson Medical College. Eleventh Edition, revised and enlarged, with Special Reference to Therapeutics and to the Physiological Action of Medicines. By CLEMENT BIDDLE, M. D., U. S. Navy, and HENRY MORRIS, M. D., Fellow of the College of Physicians of Philadelphia, etc. With numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xix-33 to 607. [Price, \$4.25.]

THE most noteworthy of the changes introduced into the present edition of this work are the addition of new articles regarding the action of a considerable number of new drugs which have come into general use since the last edition was issued, and of practically new articles on the antiseptic use of mercuric chloride and iodide, and on electricity, and the omission of useless botanical descriptions. Twenty-one new cuts have been added. The revision has been thorough, and the high standard of excellence so long accorded to this work is ably maintained.

A Text-book of Pathology, Systematic and Practical. By D. J. HAMILTON, M. B., F. R. C. S. E., F. R. S. E., Professor of Pathological Anatomy, University of Aberdeen. Copiously illustrated. Vol. I. London and New York: Macmillan & Co., 1889. Pp. xx-736.

It is not safe to express a decided opinion upon the merits of a work of which only one volume has appeared, but, if the second volume of this book is as good as the one before us, it will prove a very valuable contribution to pathology. Even if the work should never be completed, the present volume would be well worth having. The subject is treated as being one link of the chain beginning with morbid anatomy and ending with clinical medicine, and not as an independent branch of medical science. Sufficient space is devoted to the technique of the microscope to enable the student to dispense with a special treatise on the subject. Bacteriology receives adequate treatment, and the bibliography of each subject is large. The cuts are good and the index is full.

The Student's Text-book of the Practice of Medicine. By ANGEL MONEY, M. D. Lond., Assistant Physician to University College Hospital, etc. London: H. K. Lewis, 1889. Pp. xiv-458.

The first impression made by this book—that it is inadequate—is not lessened by a careful examination. It purports to be for "those who are beginning the study of medicine, those who are preparing for examination, and practitioners who have no time or inclination to peruse treatises."

Possibly it may be of advantage to these persons, but we incline to the contrary opinion. Young men beginning the study of the practice of medicine need a work which presents the subject to their minds as concisely as is compatible with perfect clearness and reasonable fullness. A work which passes rapidly from one disease to another, devoting on the average less than a page to each, does little more than indicate that such

diseases exist, can be of no service to the student, and may do him harm by accustoming him to a superficial consideration of a subject. It may be of some value to the student after he has mastered a good text-book and is cramming for examination. Regarding the practitioner who has neither time nor inclination to read treatises we have only to say that probably he will not read this book either.

Elements of Histology. By E. KLEIN, M. D., F. R. S., Lecturer on General Anatomy and Physiology in the Medical School of St. Bartholomew's Hospital, London. Illustrated with 194 Engravings. New and enlarged Edition. Philadelphia: Lea Brothers & Co., 1889. Pp. xii-368. [Price, \$1.75.]

A VERY handy treatise, which presents the main points of histology in small space and in a pleasing form. Although nominally intended for students, it will be found useful to any one who has not the time to go through the larger works upon the subject. The illustrations are good, particularly the microphotographs.

Transactions of the American Association of Obstetricians and Gynæcologists. Vol. I. For the Year 1888. Philadelphia: W. J. Dornan, 1888. Pp. xxxviii-347.

THIS new society has every reason for satisfaction as to both the matter and the manner in the first volume of its transactions. With the array of distinguished names in the list of fellows and the good work with which its career has been inaugurated, the society has reason to expect a useful and creditable future. We might select a number of papers or discussions from the volume and label them classical. The amplest justification for the existence of any society is furnished by work such as this.

BOOKS AND PAMPHLETS RECEIVED.

Congrès pour l'étude de la tuberculose chez l'homme et chez les animaux, 1er session—1888. President: M. le Professeur Chauveau (de l'Institut). Comptes rendus et mémoires. Publiés sous la direction de M. le Dr. L. H. Petit, secrétaire général. Paris: G. Masson, 1889. Pp. 760.

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Electrical Distribution of Heat, Light, and Power. By Harold P. Brown, Electrical Engineer. With Partial List of Deaths from Electrical Lighting Apparatus, and Address by John Murray Mitchell, Coun-

selor-at-Law, on Legislative Control of Dangerous Electrical Currents. New York: J. W. Pratt & Son, 1889.

Distended Gall-bladder simulating Floating Kidney. Cholecystotomy by the Lumbar Incision. By J. Ewing Mears, M. D., of Philadelphia. [Reprinted from the "Transactions of the American Surgical Association."]

The Soft Palate in the Domestic Cat. By T. B. Stowell, A. M., Ph. D., Cortland, N. Y. [Reprinted from the "Proceedings of the American Society of Microscopists,"]

The Glosso-pharyngeal, the Accessory, and the Hypoglossal Nerves in the Domestic Cat. By T. B. Stowell, A. M., Ph. D. (Read before the American Philosophical Society, March 2, 1888.)

A Year's Record of Seventy-five Cases of Abdominal Section. By B. Curtis Miller, M. D., Charleston, W. Va. [Reprinted from the "American Journal of Obstetrics and Diseases of Women and Children."]

Reports on the Progress of Medicine.

ANATOMY.

By MATTHIAS L. FOSTER, M. D.

Supernumerary Mammæ and Nipples.—Sutton ("Am. Jour. of the Med. Sci.," March, 1889) tells us that supernumerary mammæ and nipples are more common in men than in women, are usually single, on the left side and on the thoracic wall. Occasionally they are arranged symmetrically and may be found on the abdomen as well as the thorax, following the course of the superior and deep epigastric, an anastomosis which has a close if not direct relation to the mammary gland. This is the primitive arrangement in mammals, and when supernumerary glands appear along this line they may be considered atavistic or reversionary; but when they are found elsewhere there must be some other explanation of their appearance. Sometimes in women we see a bifid nipple; at other times two mammæ coalesced, but with separate nipples. Such a condition is due to dichotomy, or abnormal division of the gland germ. Intermediate stages between two separate glands and a bifid nipple have been recorded. These are not reversionary.

Aberrant mammæ are most frequently found in the axilla, where they may be found either with or without nipples. Champneys has found that the skin of parturient women often presents nippleless lumps in the axilla which may attain the size of a hen's egg. They do not possess any ducts or pores, and, though they may be noticed during pregnancy, more commonly attract attention on the third day after delivery. They enlarge with the breasts and, as a rule, decline on the fourteenth day after delivery. They may occasionally be made to furnish a milk-like secretion on pressure, but not spontaneously. He has also found mammæ with nipples, containing ducts and pores, lodged in the apex of the axilla, from which, after delivery, milk and colostrum could be expressed. Very rarely similar mammæ have been found on the acromion and thigh. In Ahfeld's "Missbildungen des Menschen" is mentioned a case in which a mamma occupied the labium majus. Barth has given an account of a nipple which grew on the face. It was just in front of the right ear and surrounded by an areola and pigmented skin. When handled it grew harder and gave rise to sensations similar to those produced by handling the true nipple. It was removed and it was found microscopically to conform to the structure of the true nipple, and that glandular tissue existed beneath it.

Supernumerary mammæ usually appear in situations which possess a goodly crop of hairs, large sebaceous glands, or both. If the milk gland is regarded as a modified sebaceous gland, these aberrant mammæ may be regarded as "sports" due to excessive development of the sebaceous glands. This assumption is supported by the discovery of very large sebaceous cysts in dermoid tumors of the ovary. The author has traced in these dermoids every stage from a nipple-like tag to a well-developed mamma with glandular tissue, ducts, and a nipple filled with a fluid microscopically identical with milk and containing colostrum corpuscles.

A careful analysis of the evidence seems to show that accessory mammæ may arise in three ways—viz., by atavism, by "sports," and, very rarely, by dichotomy.

The Vocal Cords and the Hyo-epiglottidean Ligament.—Sutton ("Jour. of Anat. and Phys.," Jan., 1889) concludes, from an extensive comparison of the larynx of man with that of a number of lower animals, that "the false vocal cords, with the cuneiform cartilages, are the degenerate representatives of the piece of cartilage by means of which the epiglottis and cornicula laryngis were originally united, and with the cornicula must be regarded as vestigial structures."

The true vocal cords he regards "as arising from the tendinous metamorphosis of those fibers of the thyreo-arytaenoideus muscle subjacent to the laryngeal mucous membrane." To make the latter hypothesis complete it is necessary to find a case in which the vocal cords in man are composed in part or wholly of muscular tissue. No such specimen has yet been found, but the author does not despair of eventually finding one, especially as a patch of striated muscle has been detected in at least one case in the anterior flaps of the mitral valve in the adult.

The hyo-epiglottidean ligament is the fibrous representative of a well-formed muscle in many mammals. He has twice seen it replaced by a distinct muscle.

The objection that it is not likely that muscular tissue should metamorphose into such highly elastic tissue as is found in the true vocal cord he meets by quoting certain muscles in the wings of birds, some of which are entirely replaced by exceedingly elastic tendon—perhaps even more elastic than the true vocal cords of man.

The Angle of the Neck with the Shaft of the Femur.—Professor Humphrey ("Jour. of Anat. and Phys.," January, 1889), being in doubt in regard to the correctness of the generally accepted statement that the angle of the neck with the shaft of the femur becomes lessened and the level of the head of the bone consequently lowered in advancing years, undertook the examination of a large number of femora of subjects of various and known ages. His conclusions he formulates thus:

1. That the angle formed by the neck of the thigh bone with the shaft varies considerably in different persons at any given period of life.
2. That it is smaller in short bones than in long bones, and that it is also most likely to be small when the pelvis is wide, the combination of these two conditions rendering it usually smaller in women than in men.

3. That the angle decreases during the period of growth, but that after growth has been completed it does not usually undergo any change, even if life is continued to extreme old age. Some change may take place in exceptional cases, but, as a rule, the angle remains the same from the adult period till death, at whatever age that may occur.

4. That if during growth the limb be relieved of the weight of the body, as in the bedridden state in paralysis or in a stump, the angle of the neck with the shaft usually retains the open form of early life, or even may become wider.

The Musculus Sternalis.—Shepherd (*ibid.*) has traced the nerve-supply to ten of these muscles which occurred in anencephalous fœtuses with the following result:

All were supplied by the anterior thoracic; two received an additional supply from the intercostals. The latter were the only cases in which the great pectoral was not deficient. This would seem to indicate that there are two kinds of sternalis muscles. When the great pectoral is deficient it seems clear, even without regard to the nerve-supply, that the sternalis is the missing portion of that muscle, but when there is no such deficiency the homology of the sternalis is not so clear. Bardeleben describes what he calls the "typical sternalis," which extends from the sheath of the rectus abdominis to the sternomastoid, belongs to the muscular system of the rectus abdominis and pubo-hyoideus, and derives its nerve-supply from the intercostals. Shepherd is inclined to think that if the branch from the anterior thoracic were carefully searched for in these cases it would always be found.

The occurrence of this muscle so commonly in anencephalous monsters would rather point to its being a reversion rather than a new muscle appearing in man.

An Abnormal Arrangement of the Kidney and its Vessels.—Dr. Mahon describes the following anomaly (*ibid.*): The right kidney was small, lying in the right iliac fossa, its lower end over the right common iliac artery. In form it resembled a flattened oval and retained nothing of the characteristic uniform shape. The ureter arose from a depression on the anterior surface by four branches, which soon united and formed a single tube which descended on the anterior surface of the kidney. The organ was supplied by five arteries, thus arranged:

1. A large branch from the side of the aorta, at the usual point of origin of the renal artery, descended behind the vena cava and entered the kidney at the junction of the upper and middle thirds of its inner border.

2. A smaller branch, but larger than the remainder, from the aorta an inch and a half above the bifurcation, passed with all of the remaining branches in front of the vena cava and entered the kidney at its inner border.

3. A branch from the aorta a quarter of an inch below No. 2. This divided into two branches of equal size and entered the kidney at the depression on its anterior surface corresponding to the hilus.

4. A branch which arose from the front of the bifurcation of the aorta and entered the kidney at the lower third of its inner border.

5. This branch arose from the outer side of the commencement of the right common iliac artery, passed behind the kidney, and entered it by piercing the convex outer border.

Small veins accompanied arteries Nos. 3 and 5. What may be called the renal vein proper arose by three branches from the front surface of the kidney. They lay behind the ureter but in front of the arteries. The two lower branches quickly united to form a single trunk, which was joined by the ovarian vein of the right side. It passed upward and outward to the upper end of the kidney, then turned inward and was joined by the remaining branch. The trunk so formed entered the vena cava a little lower down than the vein of the opposite side. The renal and ovarian veins were both large and distended with blood.

The suprarenal body was attached by fibrous tissue to the under surface of the back part of the right lobe of the liver; it was hemispherical in shape and had no connection with the kidney.

In the same subject each common carotid artery bifurcated at the level of the cricoid cartilage, and there was a large thyreoidea ima from the innominate.

An Accessory Phrenic Nerve.—Larkin (*ibid.*) describes this variation. On each side there was an ordinary phrenic nerve in its usual position, with an accessory nerve, which arose from the fifth cervical. This accessory was from one fifth to one fourth the size of the normal nerve. It crossed the scalenus anticus a quarter of an inch external to and parallel with the ordinary nerve. In the chest, between the pericardium and pleura, the right accessory was from an inch to an inch and a half in front, while the left was one fourth to one half an inch behind its companion. On each side the accessory joined the phrenic just before it divided into its terminal branches. The accessory gave several branches to the pleura and pericardium, while the true nerve seemed to give none.

The Innervation of the Bladder, Rectum, and Genital Function.—Bernhardt ("Berliner klin. Wochenschrift," "Am. Jour. of the Med. Sci.," March, 1889) reports an accident which, although the exact pathological nature of the lesion was not determined, is of interest as contributing to our knowledge of nerve distribution.

A man fell from the second story, striking upon his buttocks. He immediately complained of pain in the back, and suffered from incontinence of feces and inability to urinate, but not incontinence of urine. Nine days later he could stand alone, but with pain in the region of the seventh to the twelfth dorsal vertebra, which seemed somewhat swollen and was painful on pressure. While lying in bed both legs could be moved in a normal manner without pain. The reflexes were normal; tactile sensibility, temperature, and muscle sense were undisturbed in the lower limbs, except on the inner half of the posterior surface of both thighs, beginning at the upper border of the lower third of the thigh and extending upward to those parts of the buttocks contiguous to the anal fissure. Over this area there was total anaesthesia. The anus, perineum, scrotum, and penis were involved, but the inner

surface of the thighs, the sacral region, the belly, and the groins were normal. The testicles were sensitive to pressure. Erections occurred, and coitus was effected with the natural sensations, but the semen was not ejaculated from the urethra. The inability to urinate or control the sphincter ani continued. Persistent treatment with electricity for four months produced very little improvement.

This case, taken in conjunction with several similar ones, goes to prove that the function of the bladder and rectum is dependent on a normal condition of the lowest end of the spinal cord and of the nerves arising from it. The same symptoms may be produced by a disease of the nerves of the coccygeal and pudendal plexuses without any involvement of the cord itself. The case shows that the nerves controlling erection are separate from those which preside over the rectum and bladder, and also from those controlling ejaculation.

An Amelus.—Chalmogoroff ("Contrib. f. Gyn.," No. 50, 1888) reports the still-birth of a male child which was totally wanting in limbs. There were no rudimentary legs or arms present, but it is supposed that they were amputated early in embryonic life by amniotic bands.

Absence of the Uterus and Vagina.—Dr. Brunet ("Ann. of Gyn.," Feb., 1889) reports two cases in which the external organs of generation were normal in appearance and the breasts well developed, but the internal organs rudimentary or absent. In one the vagina ended just behind the hymen, and no continuation could be found. By bimanual examination the broad ligament could be marked out, and indications of the uterus. Fallopian tubes and ovaries could be detected. In the other no trace could be found of vagina, uterus, broad ligament, or ovaries. Both patients suffered from cardialgia and chlorosis. Several similar cases have been reported.

An Anomaly of the Lingual Artery.—Shepherd ("Ann. of Surg.," May, 1889) has found in one case the lingual artery given off in common with the superior thyreoid, opposite the upper border of the thyreoid cartilage. From that point it passed upward and inward toward the median line of the neck, resting upon the thyreo-hyoid muscle. It crossed the hyoid bone internal to the lesser cornu, almost immediately pierced the hyoglossus muscle, and thence proceeded to the tip of the tongue in its normal course. At the usual origin of the lingual was a very small branch, which ended in the hyoglossus muscle. It originated probably from enlargement of the anastomotic hyoid branches of the lingual and superior thyreoid arteries, and the consequent disappearance of the main trunk of the lingual.

It is important for surgeons to be acquainted with this rare anomaly, because the artery could not have been found by means of the usual curved incision, if it had been necessary to ligate it.

The Cranial Nerves.—The "Journal of Physiology" for April, 1889, is wholly given up to a very valuable article, by Dr. W. H. Gaskell, on the cranial nerves and the central nervous system. He treats of the nerves seriatim, commencing with the third, as the optic and olfactory do not conform to the type of the remainder. The oculo-motor ganglion he considers to be a typical motor vagrant ganglion peculiar to this nerve, and not a posterior-root ganglion, as a number of morphologists have supposed. It is not connected with any large-fibered sensory nerves from the fifth nerve, but is connected only by very fine efferent nerve fibers mainly from the third. The fourth is very similar in structure to the third; both are efferent and divisible into a large and a small-fibered part. The large fibers of the fourth supply the superior oblique, but the destination of the small fibers is not known. In each are strands and clumps of fibrillar tissue, which, he concludes, are the remnants of nerve fibers and cells, which were of importance in by-gone animals, but have become useless and lost their protoplasmic contents. Originally they were complete segmental nerves, with both motor and sensory roots, but the sensory portions have degenerated, and their place has been taken by the sensory elements of the fifth nerve.

The fifth and sixth nerves are really three—two efferent and one afferent. The roots of the motor part of the fifth contain the remains of nerve fibers and ganglia precisely like those in the roots of the third and fourth. In the sixth he finds no regular ganglion formations, and hence concludes that primitively the motor part of the fifth and the sixth nerves together form a complete segmental nerve. The ascending root of the fifth is independent.

The seventh, like the motor part of the fifth, is essentially a splanchnic efferent nerve, as the striated muscles it supplies are all of the visceral group, being derived from the lateral plates of the mesoblast. It is divided into groups of large and small fibers, of which the larger pass as motor nerves to the facial muscles, while the smaller enter the geniculate ganglion. The majority of these fine fibers form a separate root known in man as the intermediate nerve. In some of the lower animals this intermediate nerve can not be demonstrated, but the bundles of fine fibers are found to have a strong tendency to be grouped apart from the rootlets containing the large fibers of the seventh nerve and pass directly into the geniculate ganglion. This ganglion he considers, like the oculo-motor, a vagrant efferent ganglion. The evidence of the structure and function of the seventh nerve shows that it corresponds to a complete segmental nerve in that its efferent root contains a large-fibered non-ganglionated splanchnic portion and a small-fibered ganglionated splanchnic portion with its vagrant ganglia—viz., the geniculate ganglion and the submaxillary ganglion. There is also evidence of a degenerated ganglionic structure close to the exit of the nerve from the brain. So in this group of cranial nerves formed by the third, fourth, motor part of the fifth, sixth, and seventh nerves there are four fully formed segmental nerves which for some reason have lost a certain portion of their original components.

In the next group—those which arise from the medulla oblongata—we again find all the components which make up a fully formed spinal nerve, or rather group of nerves, but with no sign of degeneration of any special group. There is, however, a scattering of the different components, so that the nerves form parts of a number of segmental nerves instead of each one forming a single nerve. The sensory portion of the trigeminal belongs to this group. The group consists of at least five complete segmental nerves which are both cranial and spinal in origin. A characteristic of this group is the extensive peripheral distribution of its nerves.

Gaskell submits this possible explanation of the ancestral history of the spinal cord:

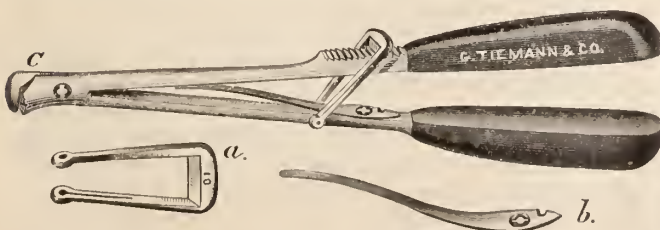
“It was originally composed of a bilateral chain of ganglia situated ventrally to a non-nervous tube, the parts of each chain being connected together by commissures also situated ventrally to the tube. By the increase and spreading round of the nerve cells and nerve fibers to the dorsal side, the original tube was so invaded by nervous elements as to have lost its original character and become the supporting structure of the spinal cord, leaving as the most marked indication of its original character the epithelial lining of the central canal and the peculiar structure of the substantia gelatinosa centralis.”

New Inventions, etc.

THE UNIVERSAL NEEDLE-HOLDER, WITH HANDLES OF THE RUSSIAN MODEL.

BY GEORGE R. FOWLER, M. D.,
BROOKLYN.

Just prior to the death of my late lamented assistant at the Methodist Episcopal Hospital, Dr. W. M. Thallon, he had suggested to Tiemann & Co. that they make a needle forceps after the pattern known



as the aseptic universal, introduced by myself, substituting, however, for the ring handles those known as the Russian. He did not live to

elaborate the details of the plan, and I was requested by Mr. Julius Pfarre, of the firm, to do so. The accompanying drawing shows the result of my endeavors. The complete instrument, with the universal jaw and French lock, is shown at c. In order to render the forceps aseptic, it became necessary to devise some plan whereby the catch which holds the instrument while grasping a needle should be readily detached for purposes of cleaning. This was accomplished by making the space between the legs of the catch, a, wider at the bottom than at the top and placing a groove upon the inner surface of each leg, this groove terminating in a hole to receive the pin placed upon either side of the handle of the forceps, upon which the catch works. At the point where the groove joins the hole for the pin, the former is slightly rounded off so as to allow the pin to readily engage in the groove when the forceps is taken apart for the purpose of cleaning. To take the instrument apart the catch is thrown as far forward as possible toward the jaws of the forceps and by simply pressing upon the catch it becomes at once disengaged by its points springing apart, when it may be slipped off the forceps at its further end. To replace it, this movement is reversed; the catch is slipped on from the end of the forceps and so placed as to bring the upper limit of the grooves opposite to the pins. By simply drawing upward upon the catch the pins glide along the groove; the legs of the former spring apart, to snap together again as the holes at the end of the grooves are reached. The spring, b, is easily removed and replaced by means of the French lock and pin.

This necessarily extended and seemingly prolix description would make it appear as if the instrument were a very complicated piece of mechanism; in reality, however, it is a very simple affair. I have recently learned to use the instrument without the catch, relying upon the grasp to hold the needle firmly. To those who have been accustomed to rely upon a catch this is at first slightly awkward, but there are advantages in this training of the hand, not among the least of which may be mentioned the advancement of the aseptic idea, which, in my judgment, should be the leading thought in the devising of any new instrument.

Miscellany.

The Diagnosis and Treatment of Extra-uterine Gestation.—At a recent meeting of the Obstetrical Society of Philadelphia Dr. William Goodell reported the history of a case of extra-uterine gestation, and exhibited the specimen. The patient had been married for a number of years without conceiving. Her catamenia had been regular up to the time when they ceased for nearly seven weeks and morning sickness set in. The next monthly period was free for a few hours, and then there was merely a show of blood which lasted several days. During this dribble severe intercostal pains, lasting two hours, followed a movement of the bowels. For several days there was great soreness of all the muscles. At irregular intervals these intercostal pains reappeared and were always followed by much muscular soreness. There were few pelvic pains, nothing like cramps, and Dr. Goodell was called in on account of a continuous dribble of blood which had lasted for three weeks. During this metrostaxis, membranes were twice passed, which were supposed to be fragments of an abortive ovum. Dr. Goodell found an irregular tumor to the left of the womb, closely adhering to it and pushing the fundus over to the right. In view of the history, a diagnosis of extra-uterine gestation was made, and the operation was promptly performed three months after the cessation of the last regular monthly period. There was no appearance of old or of fresh blood in the abdominal cavity, such as is found in many such cases when rupture has taken place. But blood escaped during the breaking up of numerous adhesions to the rectum and the broad ligament. The specimen showed the left ovary and the corresponding Fallopian tube greatly enlarged by a deposit of placental tissue. Dr. Osler, who had examined the specimen, had stated that the chorionic villi were unmistakably present. No fetus was discovered, but it might have perished and become absorbed, or possibly it had escaped into the abdominal cavity through an opening made accidentally into the sac during the

process of enucleation. So vascular was the sac that a stream of blood spurted out from this tear as if it came from a large vessel. Apart from a nervous attack of vomiting, which lasted nearly twenty-four hours, the woman's convalescence was uninterrupted.

Dr. J. Price said that he was satisfied that Dr. Goodell's explanation of the absence of the fœtus was correct. He could cite two or three cases and an experience of his own which supported this view. Mr. Tait's first two patients had made tedious recoveries, and in both cases he had failed to find the fœtus. Some time ago the speaker had opened the abdomen in a case of doubtful diagnosis. Some one standing by asked him what he expected to find. He replied, "One of twelve things." He went on and removed a large adherent tube, ruptured, the abdomen being pretty well filled with clot. He then irrigated the abdomen. After using one pitcherful, the water returned perfectly clear. To make the toilet thoroughly satisfactory, he used the second pitcherful of water, and, in finishing the second toilet, washed out a little boy. In this case he was satisfied that the peritonæum could have taken care of the fœtus by digestion, as had probably occurred in Mr. Tait's cases.

Dr. Howard A. Kelly thought that this case illustrated how readily one could make a satisfactory diagnosis, given symptoms being present. With a certain order of symptoms and signs we could with the utmost certainty diagnose extra-uterine pregnancy in a certain proportion of cases. In another large proportion of cases it was a matter of mere conjecture until the abdomen was opened. He had operated recently in such a problematical case, one of the two possibilities being extra-uterine pregnancy. Such proved to be the condition, although no fœtus was found. He found the sac and the placenta within the ruptured tube. In a recent book on this subject, by Strahan, the author had unfortunately failed to notice some experiments on the disappearance of the fœtus after its expulsion into the abdominal cavity. Leopold had experimented by introducing fœtuses into the abdominal cavity of dogs. These had been digested, provided the period of the more distinct development of the bony tissues had not been reached. After that period they became sources of irritation and were cast off by suppuration.

Dr. M. Price did not think that a study of the cases on record would make a man perfectly satisfied that he could say when he had a case of extra-uterine pregnancy. The ablest men throughout the world had satisfactorily decided that question. They had made mistakes time and time again. They had cut for supposed extra-uterine pregnancy and found something else; they had cut for something else and found extra-uterine pregnancy. It was very difficult to decide until the abdomen was opened. A ruptured extra-uterine gestation sac could only develop in the broad ligament. If it ruptured into the peritonæum, there was not a single case on record where, if the operation was delayed a number of days, the fœtus had not disappeared. Hundreds of cases were on record. He had himself seen eight or ten where the fœtus could not be found, where the microscope positively showed the presence of extra-uterine pregnancy. The cases that went on to development were those in which there had been first a rupture into the broad ligament, and then development up to a certain time when the child could resist the digestive action of the peritonæum. There was no question in his mind that in these cases electricity had done a vast deal of harm, had aggravated symptoms already existing, and had imperiled the woman's life to a greater extent than if she had been left entirely to nature. The knife, as Dr. Goodell had used it, was the only means of treatment. Delay was not justifiable at any period, unless, when the case came into the hands of the surgeon, the child had passed to that degree of development that warranted its being left to the period of viability. All these cases demanded operative procedure at an early period, if they came into the hands of the operator.

Dr. Goodell agreed with those who held to the uselessness of electricity. He thought that there was only a single class of cases of extra-uterine gestation in which electricity might be valuable, and that was in the early weeks, before hæmorrhages had occurred. An examination of the specimen shown by him made it clear to his mind that hæmorrhages must have taken place in the tube, forming layers of organized clot. In such cases he did not see how it was possible for electricity to do anything but harm. In those occasional rare specimens in which the chorion had remained intact, as in an abortion without rupture, the ovum being nothing more than a delicate but shaggy blad-

der, with the fœtus inside, he could understand how electricity could do good by destroying the life of the fœtus. Then everything might readily become absorbed; but, as we could never know positively beforehand whether or not hæmorrhage had occurred, his own feelings were in favor of immediate section. While the difficulties of diagnosis were undoubtedly very great, this need not interfere with the treatment. We found a woman suffering from certain pelvic symptoms and we discovered an extra-uterine tumor of some kind. Now a painful pelvic tumor must be removed, whatever it was. The only change in the treatment would be to hasten on the operation were the symptoms pointing in the direction of extra-uterine gestation.

ANSWERS TO CORRESPONDENTS.

No. 284.—See our notice of the work, in this issue.

No. 285.—In regard to your first question, you had better write to the company, the address of which, according to the latest advertisement that we have seen, is No. 252 Madison Avenue, New York. Our impression is that the apparatus is still regarded with favor here.

No. 286.—See our issue for July 6th, page 12.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE OLFACTORY NERVE:

ITS QUANTITATIVE AND QUALITATIVE TESTS AND ITS
PHYSIOLOGICAL IMPORTANCE;
ITS INTRACRANIAL COURSE AND DISEASES.*

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INTRODUCTORY AND PHYSIOLOGICAL. — The rhinologist must be looked upon as the particular guardian of the first cranial nerve. It is the only organ of special sense which, in the division of medical labor, he may call his own. He must naturally regard it with more than ordinary interest, and may properly feel toward it a sense of proprietorship and special expertness. He has dealt chiefly, however, heretofore, with its peripheral portion, and I shall venture now to call attention to some points connected with its general functions and its deeper anatomy, which will, I trust, possess some novelty and interest.

Physician and patient are both apt to disregard disturbances of the sense of smell. These are only discomforts or deprivations of a minor kind. The rhinologist, besides, sees in the nose mainly a respiratory organ and treats it for its fluxions, its pathological incumbrances, and other interesting disorders. The subjects of anosmia, parosmia, and hyperosmia very naturally are regarded as of minor importance, and cut but a small figure in rhinological literature.

The sense of smell is one, however, that still subserves much useful purpose, and is as yet by far the most delicate means we possess of appreciating attenuated matter. The nose does, in fact, bring us closer to the spirit world than any other organ, for the trillionth of a grain of mercaptan, which awakens a sensation in the mind, has weight and dimensions so infinitely minute as to be quite beyond the power of the imagination to grasp.†

The sense of smell, or something akin to it, is well developed in fishes; it is fairly developed in reptiles; it sinks almost to nothing in birds, while in mammals it finds its highest development. Nearly all mammals have a keen sense of smell, except those which have acquired aquatic habits, like the whale, seal, dolphin, etc., in some of which the organs of smell are entirely absent. The sense of smell is much diminished in the anthropoid apes. In man it is a rudimentary sense, but still it shows a higher development than in the apes.

Some writers have asserted that the sense of smell is keener in savage races than in the civilized, and that olfaction is less perfect as racial types become higher. This is not

* Read before the Section in Neurology of the New York Academy of Medicine.

† According to Valentin, we can perceive $\frac{1}{172000000}$, of a grain of oil of roses. According to Fischer and Penzoldt, one can perceive $\frac{1}{276000000}$ of a grain of mercaptan.

I have found that one can perceive the odor from 4 c. em. of a solution of oil of cloves 1 to 100,000.

the case. The negro or the Indian may cultivate the nose to a high degree of acuteness in certain directions, but in discrimination of odors, in appreciation of flavors, in æsthetic associations aroused by the stimulus of the cranial nerve, the civilized man is as far ahead of the savage as the latter is in advance of the anthropoid ape.*

Olfaction includes not only the sense of smell, but, in conjunction with the nerve of taste, the appreciation of flavor. It is a function that in times past served various types of animals—

1. For sexual purposes.
2. For selecting food.
3. For hunting prey.
4. For avoiding enemies.

In man it serves—

1. For selecting food and drink.
2. For arousing the sense of hunger.
3. For protection against injurious vapors.
4. For æsthetic and, in a measure, sexual purposes.

The tendency of modern civilization is to cultivate the æsthetic function of the olfactory nerve and bring it as much as possible into close association with pleasurable states of mind. A well-developed olfactory sense is thus part of a thoroughly cultured man's equipment. A diminution in the keenness of olfaction is found to be present in the criminal, lunatic, idiotic, and degenerate classes (Lombrosi, Ottolenghi).

The olfactory sense in man is, therefore, growing, and fortunately so. Every avenue to the brain which carries to it new impressions helps to develop that organ. The cultivation of the eye, the hand, the ear, all promote and enlarge mental activity. I feel very sure that by and by there will come educators and trainers of the sense of smell and taste in children by which greater keenness, power of discrimination, and capacity for æsthetic enjoyment shall be gained. The sense of smell has always been appealed to in religious rites, and women instinctively learn that to exhale a delicate perfume adds to sexual attraction.

CLINICAL.—The works on rhinology and neurology have quite exhausted the subject of the clinical disorders of the sense of smell. I do not propose to enter upon this subject except very incidentally.

In the last few years my attention has been struck by the frequency with which certain neurasthenic patients have complained of deficient sense of smell. Some of these had a moderate degree of nasal catarrh, but in other cases I could not satisfy myself that this was the sole cause.

I believe, however, that there is a neurasthenic anosmia and a hysterical anosmia, just as there are similar forms of asthenopia. A more careful and routine testing of patients

* Civilized man, when through deprivation of other senses he is led to cultivate that of olfaction, often shows capacities more marvelous than any recorded of savage races.

I might instance those cited by Professor Stanley Hall in his account of the case of Laura Bridgman ("Mind," April, 1879, p. 149). He says: "Julia Braec and other blind deaf-mutes have been able to sort the freshly washed clothes of the inmates of a large asylum, and to select and give to their owners several dozen pairs of gloves thrown promiscuously upon a table, solely or mainly by the sense of smell."

might bring greater proof of this than I am able to present now.

Frequency of Anosmia.—I have had the sense of smell tested in one hundred adults, eighty of whom were patients in the wards at Bellevue Hospital. There were fifty men and fifty women. Among these I found two cases of anosmia—one in a man, from syphilitic disease of the nose; one in a woman who had suffered for years from menorrhagia, and who was ill-nourished, anæmic, and nervous, but had no catarrhal trouble, so far as I could learn. It would hardly be safe to infer that anosmia was present in one per cent. of adults, but it certainly is not infrequent.

ANATOMICAL.—General Arrangement of Sensory Nerve Tracts.—Every sensory nerve, unless we have to except the olfactory, in entering the nerve-centers has to make certain connections with nerve ganglia before it reaches the cerebral cortex. All sensory nerves below the first and second (olfactory and optic) meet first with bipolar cells, as in the inter-vertebral ganglia; then with plexiform-process cells, such as are in the posterior horns of the spinal cord; then with still other collections of cells in the basal ganglia; finally, the fibers run up to the cortex. Some fibers do not make all these stops, but such is the general arrangement. No sensory impulse goes straight to the cortical cells.

The olfactory and optic nerves are somewhat differently arranged. They are both developed from the forebrain, which is embryologically pretty sharply distinguished from the mid-brain and hind-brain, out of which the other cranial nerves are developed. Still, both these nerves are developed as prolongations of the primary and secondary forebrain. They have analogous modes of development, and if the olfactory-nerve impulses passed directly to the cortex, it would be at least a unique physiological arrangement.*

Let us see if the olfactory apparatus can be put in the same category with that of other sensory nerves. We will take up its different parts in turn.

1. *The Peripheral End-organ.*—This is usually described as consisting of certain cells in the mucous membrane of the olfactory region. The nerve filaments here, however, are non-medullated and more like nerve processes, which I believe they are, arising from nerve cells in the olfactory bulb. The olfactory bulb and its nerve process (olfactory nerves), constitute, it seems most probable, a single end-organ,† which is comparable to the nervous structure of the retina. In some fishes, indeed, the olfactory bulb is, like the eyeball, outside the cranium. The peculiar structure of the bulb, its analogy to that of the retina (as will be shown later), and its entire dissimilarity to that of any cor-

tical or basal nervous centers, are strong arguments for this view.

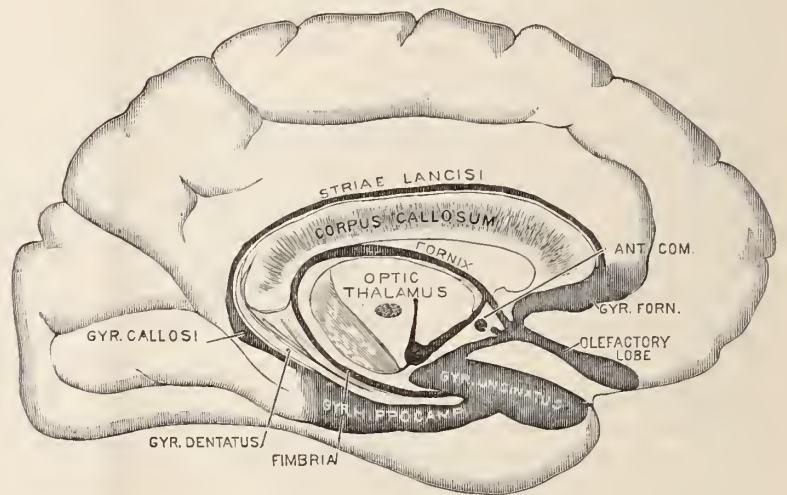
2. The second part of the olfactory apparatus consists of nerve fibers connecting the nerve cells of the olfactory bulb with those of the olfactory tract and olfactory areas in the temporal lobe, to be described below.

3. The third part consists of the cells in the olfactory tract, which is not so much a nerve strand as it is a modification of brain cortex and of other cortical areas.

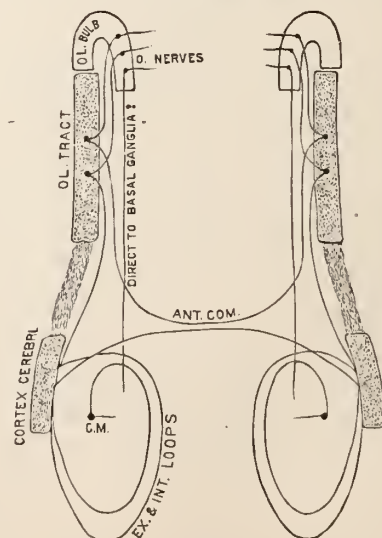
Then, cortical areas are widely distributed in the lower mammals. They are much atrophied in man. My description of them is based largely upon the descriptions of Broca and the recent elaborate monograph of Zuckerkandl.

They consist of the uncinate gyrus, hippocampus, and cornu Ammonis—all of which are parts usually described as belonging to the inner and lower part of the temporo-sphenoidal lobe.

There are still other olfactory areas, however, in the lower



animals; in man they are rudimentary. These are the anterior end of the gyrus fornicatus, which is connected to



* Von Monakow ("Archiv f. Psych.," Bd. ii, Heft 3) shows that the afferent fibers of the optic nerve take their origin peripherally in the multipolar cells of the retina; thence they pass to plexiform-process cells in the external geniculate body, then to large multipolar cells in the same ganglia and the pulvinar, thence to the cortex.

† Alex. Hill, "Plan of the Nervous System."

the olfactory tract by the inner root of the olfactory nerve. From this part their strands of gray matter pass up (gyrus

geniculi) and over the upper surface of the corpus callosum. These are known as the striæ mediales and laterales of Lancisi. They end posteriorly in a small convolution, described by Zuckerkandl as the *Balkenwindung* or callosal gyrus, and in the fascia dentata, which latter is itself intimately related to the cornu Ammonis.

Another strand of olfactory tissue—but in this case mostly composed of fibers—starts from the cornu Ammonis as the *fimbria*; it passes back up under the corpus callosum, when it is known as the *fornix*. It passes forward till it reaches the anterior part of the corpus callosum, when it descends as the pillars of the fornix, forming here boundaries of the fifth ventricle. Some fibers pass forward over the anterior commissure and connect with the outer root of the olfactory tract. But others probably continue with the fornix pillars, and pass down to end with them in the corpora mamillaria. From there fibers apparently pass up into the optic thalamus.

Both from the outer root and from the hippocampal region fibers bend inward and pass through the anterior commissure, which is in part an olfactory commissure.

It will thus be seen that the olfactory cortex consists of three deposits of gray matter in (1) the olfactory tract, (2) the hippocampus and adjacent parts, (3) the anterior end of the gyrus fornicatus. These parts are united by two loops, one passing outside and over the corpus callosum, the other beneath it. The parts on each side are united by the anterior commissure. There is between the two olfactory areas on each side of the brain but a commissural connection, no decussation of fibers as yet, and, unlike the optic chiasm, impulses excited in the nose on one side pass directly to the cortical areas described on the same side.

In man the outer root of the olfactory tract is the only one that practically exists. The center in the gyrus fornicatus and the connecting loops of gray matter (stripes of Lancisi) are rudimentary. The olfactory area in the human brain, then, is practically (1) the olfactory lobe and tract, (2) the outer root of this tract, (3) the hippocampus, uncus, and cornu Ammonis. It has a commissural union by the anterior commissure, and further connections by the fornix and association fibers in the temporal lobe.

Now, so far, the olfactory impulses have reached but two collections of ganglionic cells—those of the bulb and those of the lobe, tract, and hippocampus, uncus, and Ammon's horn. These centers are also on the same side as that of the peripheral nerve. But there are many facts in pathology which compel us to believe that olfactory sensations, like other special sensations, cross.

In addition, it is, as we have shown, contrary to physiological homologies to suppose that a sensory-nerve impulse can pass directly from the periphery to the cortex. It would be like supposing that a nerve from the retina passed without break in continuity to the occipital lobe.

Finally, the cell structure of the cortical areas referred to seems inadequate to the demands of a highly specialized and extraordinarily delicate sense-organ.*

* "The gyrus uncinatus and the cornu Ammonis are peculiarly constructed and show but a meager variety of cortical nerve-forms. The cornu Ammonis contains principally cortical elements of the pyra-

The problem of olfaction is not, then, satisfactorily settled by finding a center in the hippocampus and its adjacent areas. Nor does it explain some curious facts in comparative anatomy. The question might be left as it is; but, following the ingenious suggestions of Dr. Hill (*loc. cit.*), I would propose some such explanation as this:

The olfactory tract, hippocampus, and uncus are not really parts of the temporal lobe, but are atrophied remnants of a special lobe, the lobus limbicus, which at one time held an equal prominence functionally with other cerebral lobes. As the olfactory nerve declined in importance, the lobe became atrophied and finally rudimentary; just as the optic lobes, so large and visually important in birds, have become atrophied till they are the corpora quadrigemina in man.

The gray matter of the hippocampal region and olfactory tract is decidedly different from that in the rest of the cerebral areas (see note). It resembles a rudimentary and atrophied cerebral cortex. These regions, therefore, are imperfectly developed centers. They may be the seat of the sense of smell, but not of ideas of odor or flavor; just as there are lower visual centers.

All the special senses have, it is believed, some kind of representation in the optic thalamus.* If this is so for olfaction, it must be through the lateral or outer root of the olfactory tract, the fimbria, fornix, and corpus mamillare, as suggested by Hill. It is certain that the fornix is connected with the carrying of olfactory impulses, for it is atrophic in animals like the dolphin that have no olfactory organs, and it is hypertrophied in those animals which have a keen sense of smell (Broca, Hill). Furthermore, the atrophy experiments of Gudden show that it carries impulses from the hippocampus and uncus and not to it.

Having got the fibers to the optic thalamus, we must suppose that they pass to the cortex in the radiations from that ganglion.†

mid type. Essentially the same is true of the olfactory lobes. The olfactory bulb exhibits a special kind of cortical stratification."—Meynert, "Psychiatry," p. 70. Meynert thinks that the olfactory nerves pass directly to the cortex.

Structure of the Olfactory Centers in Detail—From without inward one finds in the *cornu Ammonis*—

1. A molecular layer.
2. A reticular layer somewhat like the small pyramidal cell-layer of the cortex elsewhere.
3. A radiate layer containing the processes of the large pyramidal cells of the next deeper layer and some pyramidal cells.
4. The pyramidal cell layer, containing cells measuring about one six hundredth of an inch in diameter.
5. The stratum oriens, containing some spindle-cells, like the corresponding layer of the cortex elsewhere.
6. The alveus or *Muldenblatt* layer.
7. The ependyma of the descending horn of the lateral ventricle.

The hippocampus and olfactory tracts resemble the foregoing very much in their cortical structure.

* Luys collects four cases—one by Hunter, three by Voisin—in which anosmia was caused by focal lesions of the thalamus.

† The connection can not be by the tænia semicircularis, as stated by Luys, for that goes to the caudate nucleus (Meynert).

C. Winkler and J. Timmer have recently reported the case of an idiot with atrophy of the left occipital and posterior part of the temporal lobe and partial atrophy of the fornix and corpus mamillare and Vicq-

I will conclude this anatomical discussion by referring in some detail to the histological analogies between the layers of the olfactory bulb and nerve and the four outer layers of the retina :

1. In the mucous membrane of the nose we have olfactory cells and pigment, and even a limiting membrane, all of which resemble the pigment, rods and cones, and limiting membrane of the outer layer of the retina.

2. The next or second layer of the olfactory bulb (stratum glomerulosum) contains groups of nucleolated nuclei with nerve fibers running among them, the whole forming "glomeruli." The nuclei of these glomeruli resemble closely those of the inner nuclear layer (fifth layer) of the retina.

3. The third layer of the bulb (stratum gelatinosum) consists of a very fine felt-work of fibers with small stellate cells. This resembles the inner granular layer (sixth) of the retina.

4. The layer of ganglion cells in the bulb resembles the ganglion-cell layer of the retina (seventh).

5. The layer of nerve fibers.*

This similarity has been noted by several observers (Babuchin, Meynert, Obersteiner). It tends to show that the retina, like the olfactory bulb, is like a modified spinal ganglion.

Bibliographical.—The anatomy of the olfactory tracts has been studied by von Gudden by the atrophy method; by Broca, Zuckerkandl, and Alexander Hill, by the comparative anatomical method; by Ferrier, Luciani, and Sapielli, by the experimental method; and by various other anatomists (Meynert, Ferrier, and Obersteiner), to whose works I am indebted.

The views of Luys and others that the olfactory nerve is connected with the amygdala, and those of Meynert which connect it with the caudate nucleus, seem disproved by the researches of Zuckerkandl.

The descriptions of von Gudden apply to the rabbit, and it does not seem to me that his scheme of the internal relations of the nerve is carefully worked out or can be applied to the human brain.

The Examination of the Olfactory Sense.—An interesting fact in connection with this comparison are the investigations of Professor Haycraft upon the sense of smell ("Brain," July, 1888).

He finds that there is a similarity between the molecular weight and vibration of bodies and the odor they exhale, and he shows that probably the sense of smell as well as that of taste must depend upon the rate of vibration of gaseous particles, just as the variations in color depend upon the

d'Azyr's bundle on the same side ("Neurol. Centralblatt," 1889, p. 362). This looks against an olfactory function for the fornix; but it shows that it carries impulses to the thalamus and that the corpora mamillaria are connected with the thalamus. Meynert indeed considers them as belonging to that ganglion.

* Summarized, the arrangement is as follows:

The 1st layer of the olfactory bulb, including cells, etc., of mucous membrane = 1st (outer) layer of retina.

2d layer, strat. glomer. = 5th layer of retina, int. nuclear.

3d layer, strat. gelatin. = 6th layer of retina, int. gran.

4th layer, ganglionic = 7th layer of retina, gangl.

5th layer, nerve fiber = 8th layer of retina, nerve fiber.

vibration rate of the ether. It may yet be possible, therefore, to construct scientifically harmonies and discords of smell and to produce actual symphonies in odor which shall awaken as deep emotion as the music of Beethoven or the paintings of Corot.

As a preliminary and very remote approach to this, I have constructed a qualitative olfactometer by which the quality of the sense of smell can be tested just as we test the sight for color-sense or the hearing for musical pitch. It consists simply of two sets of phials:

The first contains monatomic alcohols of gradually increasing molecular weight—viz.:

1. Methyl alcohol (CH_3OH), faint alcoholic odor.
2. Ethyl alcohol ($\text{C}_2\text{H}_5\text{OH}$), faint alcoholic odor.
3. Propyl alcohol ($\text{C}_3\text{H}_7\text{OH}$), alcoholic odor, with flavor.
4. Amyl alcohol ($\text{C}_5\text{H}_{11}\text{OH}$), less alcoholic odor and more flavor.

The second set is like the first, but contains another group of bodies—viz., the fatty acids:

1. Formic acid (CHO.OH), acetic odor.
2. Acetic acid ($\text{C}_2\text{H}_4\text{O.OH}$), acetic odor.
3. Propionic acid ($\text{C}_3\text{H}_6\text{O.OH}$), acetic odor, with flavor.
4. Butyric acid ($\text{C}_4\text{H}_8\text{O.OH}$), slightly acetic, with well-marked flavor.
5. Valeric acid ($\text{C}_5\text{H}_{10}\text{O.OH}$), no longer acetic, the flavor alone present.

These solutions must be diluted considerably.

Now, a person with a normal sense of smell should be able not only to smell all these substances, but distinguish them and their relations, just as a person with normal vision should not only see forms but distinguish colors.

It is probable that the investigation of the sense of olfaction by this means will show that there are persons whose sense of smell is keen but who are odor-blind, just as there are persons with keen vision who are color-blind. And it is in this qualitative perception of odors that the human odor-sense is developing.

For quantitative tests of the sense of smell I have an instrument devised by Zwaarback, which is satisfactory enough, but which is expensive and is constantly breaking.

For ordinary use, I prefer this collection of six phials containing + oil of cloves, + in purity and in watery solution or mixture of 1 to 10, 1 to 100, 1 to 1,000, 1 to 10,000, and 1 to 100,000. These proportions are used in accordance with the Weber-Fechner psycho-physical law that a sensation increases in accordance with the logarithm of the stimulus. The law is approximately true for sensations of low and medium intensities at least, and it may be applied in a measure to the sense of smell.

We have, therefore, qualitative and quantitative olfactometers. In testing, the phials in each set should be mixed up and the patient should be made to sort them and make his own discoveries regarding their intensity and quality.

It may be remembered that the sense of smell is exhausted in about three minutes for a single odor, but returns in a measure after one minute's rest (Aronsohn, "Arch. f. Anat. u. Phys.," 1886, 321).

PATHOLOGICAL.—I have left but little space to consider the subject of the pathology of the olfactory tracts. Fortunately there is no need of saying much, for our present knowledge is sufficiently summarized in standard works.

The intracranial olfactory tracts and centers are affected primarily by—

1. Degenerations in locomotor ataxia and general paresis and in the course of senile decay.
 2. Inflammation. Very rarely there is actual olfactory neuritis (Althans).
 3. Functional paralysis and irritations, as in hysteria.
- Secondarily by—
4. Injuries, hæmorrhages, inflammations (meningitis, abscesses), and tumors.
 5. Neerotic and atrophic processes, as in softening from thrombi, etc.

The location of the pathological process is usually at the base of the brain and in the anterior fossa.

Lesions causing olfactory disorder have also been found in the hippocampus, in the thalamus (four cases cited by Luys), in the posterior part of the internal capsule on the opposite side (Féré), and in the pons (one case of tumor cited by Benedict).

Syphilis is probably the most frequent of the causes of anosmia.

If careful testing of the sense of smell were made in all cases of central organic disease, it is quite likely that its disorders would furnish us more important data in diagnosis than we now gain, since the intracranial distribution of the olfactory tracts is so extensive.

As we must, however, in these cases always exclude peripheral causes, the rhinologist will be called upon to determine positively the value of the test. Hence it may be most important to be able to do this with the utmost skill, and the introduction of the qualitative olfactometer may for this reason prove of value.

In conclusion, allow me to say that I have aimed in this paper to show that the first cranial nerve is not in its senility, but is a developing sense clinically, and that there are many unsolved problems of its physiology, anatomy, and pathology which the specialist in nasal and throat disorders can do much to solve; and that an interest in these problems is justified not only by their scientific importance but by their practical value.

A NEW METHOD OF DRAINAGE OF THE BLADDER AFTER SUPRAPUBIC CYSTOTOMY (CAPILLARY DRAINAGE).

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EVERY surgeon who has attempted to maintain continuous and efficient drainage from the bladder after suprapubic cystotomy will agree with me as to the difficulties inherent to and inseparable from such attempts. It is not intended here to discuss the indications present in each case pointing to the necessity or otherwise of suturing the bladder and depending upon permanent or occasional catheterization on the one hand, or a perineal section and drainage by this means on the other. These procedures relate to cases where the surgeon may have a choice as to the method to be pursued, and in which the conditions present after a prosta-

tectomy, the removal of a calculus or a neoplasm, will guide his judgment as to which direction he shall choose for drainage, or as to whether he will drain at all or not. The present communication is intended to call attention to the inconveniences experienced by both the patient and the surgeon in carrying out drainage from the suprapubic wound itself.

In the first place, it must be admitted that there is no position in which the body can be placed, short of the knee-chest position, which will bring the site of the suprapubic wound upon a lower plane than the rest of the bladder. Unless this be accomplished, drainage by means of tubes is an impossibility. The lateral decubitus suggested by Petersen does not accomplish it, even when aided by the use of the T-shaped tube of Trendelenburg, or further facilitated by making the suprapubic incision transverse, instead of parallel to or in the median line, as suggested by the last-named surgeon. The substitution of the + shaped tube is of very slight if any advantage over the T tube, for the reason that the projecting portion, which is intended to dip down into the bladder, if sufficiently long to reach the *bas-fond*, becomes a constant source of irritation; on the other hand, if this is not accomplished, even the advantage which is supposed theoretically to accompany this device is lost. Surely, water will not run up hill, and a siphon action can not be maintained where the source of supply to the siphon is not constant. The nearest approach to the ideal (knee-chest) position is the latero-abdominal decubitus. Experience has shown me that it is almost impossible to maintain this, even with more or less constant changes from side to side; in some cases, unless the nurse holds the patient by main force in this position, it is absolutely impossible to maintain it.

The natural position for an old person (and permanent suprapubic drainage is required oftenest in old men) confined to his bed by any illness is upon the back. Whether he is partly elevated in bed (half-sitting posture), or whether his head and shoulders are lowered almost or quite to a level with the rest of his body, the result is the same—the base of his bladder remains its lowest part. To place him in any position other than the dorsal or some of its modifications, and attempt to keep him there for any length of time, is to elicit from him constant complaint, and finally inflict upon him cruel torture if the attempt is persisted in.

The thing to be desired is a method of drainage whereby a continuous flow of the contents of the bladder may take place and the patient still maintain any position in which he may be comfortable. At the same time, this should provide against infiltration of urine into the anterior abdominal walls. If the patient lies upon his back and reliance is placed upon tube-drainage, infiltration, to a greater or less extent, will almost inevitably occur; at least, such has been my experience.

In order to overcome these objections and difficulties, I have recently pursued a plan that has given me great satisfaction. The plan is that of capillary drainage, and the method of carrying it out is simplicity itself. I select hygroscopic cheese or butter cloth, and, first sterilizing by heat, dip it in a hot milky mixture of oxide of zinc and

distilled water to which a trifle of glycerin has been added. Any sterilized gauze or cotton wicking will answer the purpose without the addition of an antiseptic if changed frequently. Either oxide of zinc, bismuth subnitrate or iodide, or even iodoform if used with caution, will answer as an antiseptic; the non-poisonous and non-irritating qualities of the two first-named, however, render them the most desirable for the purpose. The folded squares of the material selected for the purpose are placed in the hot mixture, which is kept agitated to prevent precipitation. They are then wrung out and packed in air-tight jars (fruit jars), which have likewise been sterilized by exposure to heat. Another plan, and one which I prefer, particularly when the packing is to be intrusted to a nurse, is to have the gauze prepared in strips of the proper width—say, about two inches—and rolled up as a roller-bandage. This is dipped in the zinc milk while the latter is being stirred, and then wrung out. This is then unrolled, and at the same time packed in the sterilized fruit jar.*

Adopting the plan of Galvani, of Athens, of securing the walls of the bladder by two stout lateral ligature loops for the purpose of identifying the same during the first few days after the operation, or until the structures forming the edges of the wound in the abdominal wall have become consolidated, I retract the parts and pass the end of a strip of gauze into the bladder. By means of a dressing forceps this is carefully carried to and gently packed at the *bas-fond*. This may complete the procedure, or, in addition to this, the gauze may be fed in and loosely packed, or allowed to adapt itself rather to the cavity of the bladder. The end is allowed to project two or three inches, when the dressing is finished by laying a few folds of the gauze between the edges of the wound. The projecting end of the gauze strip is laid upon a piece of rubber macintosh, which is so disposed as to carry off the urine to a basin placed beside the bed, or a large towel, made into a compress and the end of the gauze drain allowed to rest upon this, will answer the purpose admirably.

Should the fear arise that the suprapubic wound will close prematurely or become too small to allow the strip of gauze to pass readily, the difficulty may be obviated by using a very short rubber drain of rather larger caliber, having a flange to prevent it from slipping into the bladder, or, what answers the purpose equally well, a large safety-pin passed transversely through its walls in such a manner as not to interfere with its lumen, and thus prevent the gauze strip from passing readily through the same. This rubber simply answers the purpose of a thimble, to prevent closure of the wound. The drainage strip is passed through this into the bladder, a towel folded, with a square of macintosh in its folds, and placed in position, the whole being secured in place by means of a binder such as the obstetrician uses after child-birth. With the dressings so arranged the patient may assume any position or even walk about without much inconvenience.

It is useless to attempt to prevent the contact of the

* This zinc gauze, prepared in the manner described, I have used for a long time as a general surgical dressing, when such a one is required, in which any antiseptic substance has been incorporated.

urine with the wound in the abdominal wall. It is far better to neutralize the evil effects of this contact by providing uninterrupted drainage and keeping the urine free from irritating qualities by means of an efficient antiseptic than to attempt to place a rubber tube in position and depend upon packing between its outside walls and the wound edges to prevent contact or infiltration. In fact, the latter condition would be somewhat favored by pursuing such a course.

To sum up, therefore, the method of capillary drainage of the bladder offers the following advantages:

1. It allows the patient to assume any position most comfortable to him.

2. It is not easily displaced, and its action is not interrupted or interfered with by any accidental circumstance, such as sudden movements on the part of the patient, etc.

3. It furnishes an antiseptic to the urine, thereby lessening its irritating qualities, and an antiseptic dressing to the bladder walls and edges of the wound at the same time.

4. It is simple, requiring no elaborate preparations and not depending upon the art of the mechanic. It is effective, as I have proved to my own satisfaction by actual experience. And, above all things in importance, it is conducive to cleanliness in a class of cases in which sensitive patients constantly complain of what they consider a deplorable condition.

THE INFLUENCE OF MUSIC AND ITS THERAPEUTIC VALUE.

BY SEBASTIAN J. WIMMER, M. A., M. D.,
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FROM the earliest days—the very beginning of society—men, even in their savage state, signalized themselves on great occasions by a recourse to music; in songs they celebrated their various religious rites, lamented their public and private sorrows, expressed their great joy and grief, or excited one another to perform noble deeds. Simple as was this melody, it nevertheless possessed the power and expression necessary to call forth strong emotions, as a result of the wonderful influence it exerted on the mind. The Hindoos attributed supernatural power to its workings, and among the ancient Hebrews there was hardly an occasion arising above commonplace events of every-day life when they did not resort to it, even recognizing its therapeutic value. Man is a musician by nature, his emotions having created him such; and the power manifested in sound, partly from nature, partly from habit and association, so influences the fancy by pathetic impressions as to delight even those people of the most barbaric races. The marvelous powers of this soothing “language” upon the human family are at the present time even greater and more beneficial, because their effects are more thoroughly appreciated by the masses than formerly, and so great and rapid have been the strides made within recent years, comparatively speaking, that not only have the public generally noted it and commented thereon, but it has elicited the investigation by medical men as to its value as an auxiliary in the treatment or management of certain nervous complaints.

Music has indeed great power in influencing the habits of people; it soothes the wrinkles of a hard life of business, elevates our minds from thoughts of money, enterprises, anxieties, intrigue, hatred, weaning us from low and demoralizing pleasures. It is an educator; its subtle pleasures can impart only good impulses, which, causing an appreciation of its effects, can not be otherwise than at once beneficial and lasting. I firmly believe that the taste for music is inherent in every child born. Was there ever yet a babe which could not be sung to sleep? The domestic history of every family attests that. How, then, can we account for these phenomena? In very sensitive nervous centers, which are readily impressionable, located either in the cerebrum or spinal cord, the effect is discernible; and in those who are readily susceptible to all its power we find it principally manifested, for it acts with great effect on the majority of nervous systems. The brain is not alone affected, although direct impressions are powerfully transmitted through the auditory center. Slow, monotonous music, provided it is not too sluggish, has a calming influence over the individual, because it is then in accord and harmony with the nerve habit of the person who listens; if these essentials are wanting, it then may do more harm than good by causing irritation. Again, it is also essential to the ultimate success of any endeavor to bring the brain under this control that it should first arrest the attention, either by its power or sweetness, and then gradually conduct the organism into harmony with itself. Unless, say, a measured cadence begins with a powerful appeal to the brain in a key which accords with that in which the cerebrum is at the moment itself working, the sort likely to calm the mind, a negative result ensues, and, instead of allaying irritation, we find it to be more likely augmented. To arouse the spirits by music, plaintive sound is required, and this must be in the key of melancholy, which blends in harmony with the brain state of the person. The so-called brain state may be immediately changed by the attention being arrested and the cerebrum reached through the auditory center, the key being gradually and surely modulated.

On July 18, 1877, the "Lancet" states that M. J. Rambossam read a paper before the *Académie des sciences morales et politiques*, at Paris, on this very subject, and he attempted a new application of the theory of the transformation of mechanical movement into psychological and psychical movement, with the idea of securing music as a means of curing, or at least assuaging, disease, both of body and mind. Rambossam then mentions some maladies or affections which can be alleviated by this influence, explaining the action scientifically, together with its power on the development and functional play of the moral and intellectual faculties, and on the physiological state of individuals. His conclusions are as follows: (1) That there is a music which has a special action on the intelligence and on the motor nerves; (2) a music which influences specially the nerves of sensibility and the sentiments; (3) a music which acts all at once on the motor nerves and on the sensitive nerves, on the intelligence and on the sentiments. He further believes that between the effects of music and those of the aliments which modify the nervous system there are such analogies

that the laws which regulate the one and the other may be arranged in the same terms. We might assuredly profit by these musical effects in the treatment of mental and nervous affections, for they certainly have a marked influence on the sympathetic nervous system—namely, by producing a soothing effect; and this great influence exercises its power over all, whether of the educated or uneducated class, for a fine appreciation of even the grandest and noblest music is by no means a criterion of mental activity or elevation, it being enjoyed alike by all individuals. The relative and specific effects of rhythm, melody, and harmony upon persons suffering from certain maladies, such as melancholia and acute and chronic mania, have been noted, and with beneficial results in many cases; but different modes and various kinds of music have affected individuals and groups of individuals in peculiar and different ways.

In 1878 some very curious and interesting experiments were carried on in New York city, at the Randall's Island Asylum. Fourteen hundred females (insane) were congregated in the large entertainment hall of the institution and subjected to a strain of piano music for half an hour, when the general effects were noted as follows: the pulse was raised, the patients became restless, and there was a marked desire to keep time with the music. They were all susceptible to the rhythm, and its effect was decidedly stimulating. Melody without any very decided or certain tempo was without effect excepting in those cases where the force of association was still active. In a case of chronic melancholia the playing of "Home, Sweet Home" invariably brought the patient to her knees, where she began to recite the Lord's Prayer in an apparent ecstasy of devotion. In another case—one of acute mania—the patient's pulse was elevated from 78 to 106 beats, the patient not showing any other signs of excitation save the involuntary twitching of the facial muscles. Cantabile music seemed to have an effect, in the worst cases, similar to that which it exercises upon certain animals, the person being disposed to lie down and go to sleep under its influence. The results of all these experiments were markedly beneficial, and, by frequent repetitions, many of the patients showed great improvement. The effects, in almost every instance, of the pronounced rhythm were involuntary, the movements of the limbs and facial muscles being attributed to reflex action. It seems plausible to me that music can exert a wonderful influence over an individual whose nervous system has been shattered in any way by gradually soothing that system and bringing it into harmonious accord with the spirit of the composition interpreted.

Many persons, to worry off the cares and anxieties of this life, seek succor and renewed life in the concert hall, where harmony reigns supreme and stamps its individuality indelibly upon the sensitive nerve organism of the individual, refreshing and stimulating it, and thus paving the way to mollifying the effects of many complaints. Music seems to quiet the sympathetic nervous system, and by so doing penetrates the soul and brings the relief which is lasting. Some authorities go so far as to suggest a place in the *materia medica* for music, for it certainly is a remedy for such complaints as neurasthenia, insomnia, nervous prostration,

and other diseases. There is indeed solace in music, for this world has its work and troubles made pleasant by the cheerful notes which emanate from harmonious compositions laden with the fragrance which permeates the very recesses of the soul with all its curative effects, for upon the mind does the responsibility of the rest of the organism depend for its support and existence—*mens sana in corpore sano*. The sounds produced by various harmonies blend so readily with the human organism that their effects are readily appreciated by all, for few people are altogether devoid of a capacity for appreciating good music, even when not gifted with any great natural taste. Work, which sooner or later becomes mental strain, finds relief in an atmosphere impregnated with music, for it vibrates the nervous fibers of the listener in sweet sounds, resulting in anything but evil. It is the one art alone which can afford peace and joy to the heart where *medicine* can not, for sorrowful anxieties and restless troubles flee before the sweet harmonious tones, and many a heart, full to overflowing, has been refreshed by music when sick and weary.

“Music exalts each joy, allays each grief,
Expels diseases, softens every pain,
Subdues the rage of poison and of plague.”

Spontaneous Rupture of the Heart.—Dr. Mallet, of Paris, described before the *Société anatomique* of that city a case of this accident which occurred last May in the Hôpital Tenon. The patient was a man, aged seventy-nine, with pulmonary disease. He died suddenly after rising to micturate. A rent, almost vertical and over two inches long, was discovered in the anterior aspect of the wall of the left ventricle. The pericardium was full of blood, the aorta atheromatous, and the left coronary artery nearly obliterated. All the valves were normal. Dr. Mallet quotes Odriozola's statistics of spontaneous rupture of the heart. That observer could only collect one hundred and seventy-six authentic cases. In many instances the patient was old, being between sixty and seventy in thirty-six, and between seventy and eighty in forty-five. The accident appears most frequent in women. As a rule, the escape of blood into the pericardium is considerable. The rent in the wall was unusually large in Dr. Mallet's case. In nearly every instance in Odriozola's statistics the rupture was in the anterior part of the left ventricle. The original report of the case deserves study. The rupture apparently took place fifty-three hours before death, when the patient was seized with dyspnoea and epileptiform convulsions marked in the upper extremities; his face turned pale. The exertion of rising to micturate caused immediate death, probably by sudden escape of blood into the pericardium. A similar history has been recorded in other cases of spontaneous rupture of the heart.—*Brit. Med. Jour.*

The Tendon Reflexes in Leprosy.—S. M. Suzuki, M. R. C. S., L. R. C. P., contributes a paper to the “*Sei-i-Kwai*” (May) upon the “Tendon Reflexes in Leprosy.” His attention was called to this subject by finding to his surprise that the reflex was increased in a case of anæsthetic leprosy. In five other cases since observed by him, including both the anæsthetic and tubercular forms, the reflex was similarly exaggerated. A like result appeared from the examination of seventeen cases from a leper asylum and among Mr. Suzuki's out-patients at the Tokio Charity Hospital. He remarks that the change in leprosy is that of interstitial neuritis, and that the bacillus of leprosy has been found in the new-formed connective tissue. Yet in other forms of multiple neuritis the tendon reflex is abolished. Moreover, in leprosy muscular strength is well preserved, paralysis being of rare occurrence, even in advanced cases. He concludes, therefore, that in this disease there must be other changes in the nervous system besides multiple neuritis, and intends to report at a future date upon the electrical reactions.—*Lancet.*

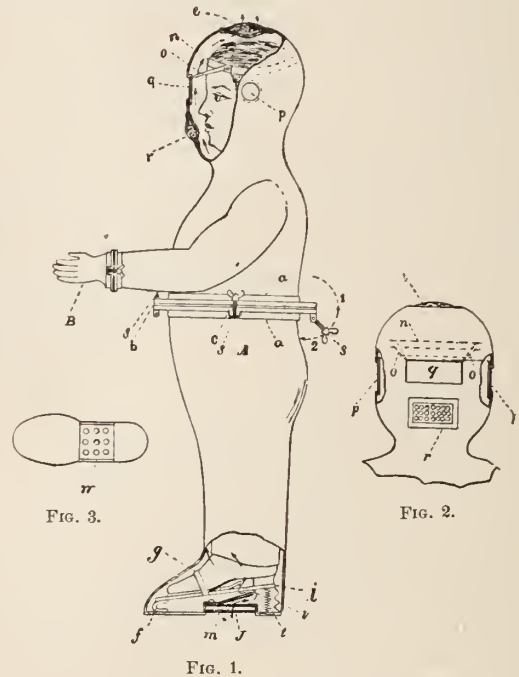
THE ASEPTIC SUIT.

By J. L. ROLLINS, M. D.,
AUBURN, CAL.

AN aseptic suit, so far as the writer is aware, has hitherto been unknown to the medical world.

In presenting this article, the new application of an old truth, viz., that cotton is impervious to germs, is all that is attempted. Without entering into details of the evolution of this idea, I will proceed at once to a brief description of it.

This invention consists of an aseptic suit or dress, the object being to provide means of protection to physicians and others against contagium while attending persons afflicted with contagious diseases.



The device consists essentially of a suit or dress adapted to be readily adjusted over the ordinary clothing, so as to entirely cover the wearer, said dress being made almost entirely of material impervious to atmospheric air, such parts as do admit the passage of atmospheric air consisting of germ-proof material.

A further object of this device is to provide said dress with mechanism adapted to be actuated by the wearer for supplying an ample quantity of filtered air for respiration, and to provide said dress with the necessary facilities for using the stethoscope and laryngoscope, and also with removable gloves, in addition to a suitable glass-protected opening in the front part of the head-covering, so that while protecting the wearer against contagium he may have the use of his eyes, ears, and hands.

With these ends in view, this invention consists in certain details of constructions and combinations of parts as illustrated in the drawings.

Fig. 1 is a side elevation of the suit or dress, showing the foot and face parts in section. Fig. 2 is a front elevation of the head part of the dress, and Fig. 3 is a plan view of the under side of the foot part of the dress.

Referring to the drawings, *A* represents the dress, which is preferably made of rubber goods and in two parts, joined together at the waist by flanges *a a'*, one of which is secured to the upper part of the dress and the other to the lower part thereof, said flanges being secured to the dress by cement or otherwise and clamped together, preferably by swing-bolts *S*, pivotally secured to the under side of the lower flange *a'*, and provided with thumb-nuts as shown, said bolts being adapted to swing upon their pivots, as indicated by the arrows 1 and 2, into slots provided for their reception in both flanges, as shown at *c*, Fig. 1, thus affording a ready means for clamping together or separating the two parts of the dress. (For the thumb-nut, an eccentric is substituted, which admits of a more rapid adjustment of the suit.) A flat rubber or other elastic band, *b*, is interposed between the two flanges for the purpose of making an airtight or germ-proof joint.

Each hand of the wearer of the dress is protected by a removable covering or glove, *B*, secured to the sleeve of the dress by means analogous to that employed for securing together the two parts of the dress at the waist.

On the crown of the head-piece is secured a disc, *e*, consisting of two perforated metallic plates, made slightly concave toward each other for the purpose of securing in position between them a wadding of cotton or other germ-proof material, a similar disc being secured opposite the mouth in the face part of the head-piece, as shown at *r* in Figs. 1 and 2.

Near the ear is a circular opening, *p*, over which is cemented a very thin disc of rubber, backed, for the purpose of giving the requisite strength, with a piece of woven linen. This thin but air-tight disc, one of which is located on each side of the head-piece, as shown in Fig. 2, is to afford the required facility for using the ear and stethoscope, which is done by simply pressing the latter against the disc and the disc against the ear.

For the purpose of admitting light to the interior of the head-piece, the upper front part thereof is provided with a glass-covered opening, *g* (shown in Figs. 1 and 2), said glass cover being supported at the required distance from the face by a light metallic frame, *o*, secured to a brow-band *n*, which fits the upper part of the head like a hat, of which the crown is the germ-proof disc *e* (see Fig. 1).

It will be observed that the part of the dress below the waist is formed like a pair of trousers and boots combined—that is to say, all in one piece. In each foot part is a bellows, of which the upper movable board *i* is adapted to receive the foot of the operator, which is secured thereto by an instep-strap, *g*. Said board, *i*, is hinged at *f* to the toe part of the dress, the rear part being free to vibrate upon said hinge in a vertical plane, the heel part resting upon the upper end of a spiral spring, *t*, of which the lower end rests upon the internal heel part of the foot of the dress, a little in advance of which is a germ-proof disc, *m*, similar to that in the crown of the head-piece and secured in the hollow of the foot part of the dress, as shown in Figs. 1 and 3. On the upper side of the germ-proof disc, *m*, is an inlet check valve, *J*, as shown in Fig. 1, and there is also a similar but smaller valve, *v*, on the upper side of the

movable board *i*, just beneath the hollow of the foot of the operator.

Matters being thus, the wearer of the dress can supply himself, by an easy treading motion of the feet, with an ample quantity of filtered air, drawn in from beneath the feet and forced upward, thus maintaining an upward current of purified air for respiration, as indicated by arrows, and also driving out through the discs *r* and *e* the air that becomes vitiated in the head part of the dress. The movable upper bellows-board *i* needs only to be pressed downward, the upward stroke being accomplished by the resilient action of the spring *t*.

The mouthpiece of a funnel-shaped rubber tube, attached to a portion of the disc *r* (Figs. 1 and 2), may be placed in the mouth during any necessary inaction of the bellows, temporary respiration being conducted through the disc *r*, thus avoiding any condensation of pulmonary vapor on the glass-covered opening *g*, that might occur.

To the frame of the glass-covered opening *g* is attached a device to support an ordinary head mirror, for otoscopic, rhinoscopic, and laryngoscopic examinations and minor operations.

A pair of suspenders are attached to the trousers within and supported by the upper flange *a* (Fig. 1). For ladies a rubber skirt may be provided.

The discs are composed of cotton treated antiseptically, and may be removed at will and sterilized by heating in an oven.

The aseptic suit in the treatment of isolated cases of contagious disease is designed to be transported in a convenient casing to within safe limits, when the dress is adjusted, the patient visited, and the exterior of the suit disinfected by the atomizer, when it is removed after having left the premises.

In epidemics, such as yellow fever, that scourged the Southern States in 1888, the residence of the physician may be subjected to sanitary measures, the aseptic suit adjusted on issuing therefrom, and the exterior disinfected on returning.

The aseptic suit, it is believed, offers to the wearer immunity from all specific causative agencies productive of contagious disease.

It will be observed that the end for which this invention is designed is secured by the exclusion of specific contagium, thus placing the operator in effectual insulation, regaling his being in atmospheric air as pure as that of the Alpine heights, safe behind the barrier of impregnable cotton that repels the attack of miasmata and cannon-ball alike.

The aseptic suit, while preserving every sense for accurately diagnosing and treating all contagious diseases, and offering positive immunity to the wearer and to transportation of infecting germs to others, may it not be reasonably expected that in this invention is found a device which in the hands of intelligent physicians will absolutely stay the spread of contagium?

The Paris International Congress of Dermatology and Syphilography.—Dr. A. R. Robinson, of New York, has been appointed by the committee on organization to open a discussion on the subject of lichen.

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CERTAIN CAUSES OF ILL-HEALTH AMONG WOMEN.

CORSETS, high-heeled shoes, late hours, irrational eating, a deficiency in mental discipline, the absence of sufficient individuality, the want of some object of vital interest in life, together with the carking cares of our cruel American house-keeping—what the Indian called “too much house”—have each, in turn, served as texts for preachments many and fierce concerning the alleged physical degeneracy of women. While it is painfully true that the present system of domestic life is in many particulars defective, it is impossible to specialize and indicate any given point as the weakest in a chain that is pretty generally open to criticism. The physical degeneracy of American woman—if it exists—is due to causes quite outside the pale of heels, corsets, or even mince pie.

The dissipations of the grandmothers in the matter of household prowess and the general hardships of life in a new country are responsible, to a certain extent, for the bodily frailties of our girls. Superhuman and inhuman tasks are the sour grapes that our feminine ancestors did eat, and they have set on edge the teeth of modern young women. Though home life to-day too often is a tyrannous, heart-breaking affair, in comparison with that of Puritan womanhood in colonial times it appears a sea of heavenly rest. The only superiority of that age over our own is to be found in the firm conviction in the minds of Puritan matron and maid that life was really worth living. Now there is doubt upon that point, not loud but deep, among an overstrained and always tired latter-day femininity. The condition known as being “half dead” engenders narrow views.

But to return to our muttons—those hitherto unrecognized causes of feminine insufficiency in the matter of health. A prolific source of overstrain, with its consequent weakness, and, possibly, disease, is the size and weight of all household appliances. They are invariably too big for women to use with ease and comfort. Pots, pans, brushes, brooms, coal-scuttles, etc. are all too large and too heavy for the ordinary woman. Every household article is of the pattern best suited to the strength and inclination of the average man. The flat-iron, the ironing-table, and the clothes-basket were made for man; also the wash-boiler and the stationary tub. There is seldom any hint in point of size and weight that scrubbing-brushes and mops are feminine weapons. In the house and out of it, this is a man's world. His dominion includes not only the beasts of the field, but also the host of inanimate objects that pertain to civilization. Desks and stools in offices, seats in cars, theatres, ferry-boats, churches, everywhere, were designed exclusively for men. Women can not even fill the chairs at home, and, at best, only rattle around in them with

more or less discomfort. Occasionally a chair is encountered that fits—not too high, too deep, or too broad. Then the spirit of peace dwells for a time in that reposeful structure.

Here is certainly a state of things. Who is to blame for all this? The manufacturers? Ourselves? Our neighbors? Our friends? Our enemies? Who is responsible, and with whom does the fault lie? Painful as it is to speak the truth, let every man nerve himself for the ordeal. Women themselves are to blame. Persistent hints from household workers would have revolutionized their tools long ago. Women's burdens are for the most part self-imposed. They exist because of tradition, want of thought, and a deficiency of inventive faculty. The feminine mind is apt to find expression in tenderness, encouragement, sympathy, and that heavenly patience which makes it possible to do the petty tasks of daily drudgery unflinchingly and persistently. The world can ill afford to lose even the minutest fraction of these divine gifts. The joy of life is by no means an exhaustless store. There is every reason to protect women from unnecessary wear and tear. The tyranny of things presses so heavily upon the better sex that looking on the world with level eyelids is too often an utter impossibility. The machinery of home could be made simpler and better suited to the requirements of the situation; and the gain would be an all-round affair, preserving beauty, maintaining health, and bringing about an increase of sweetness and light. Self-interest is a good enough incentive for instituting domestic reforms; and generosity is not a bad motive, either, after the fashion of Pepys, who gravely records, in the immortal “Diary,” that he presented a new gown to his wife on Christmas day, in order to give the poor wretch pleasure! There is a sure reward for the hero who brings about a harmony of size, weight, and fitness between household appliances and the modern woman. The gratitude of the poor wretch is certain to equal the measure of her intelligence.

MINOR PARAGRAPHS.

DR. OLIVER WENDELL HOLMES AT EIGHTY.

DR. HOLMES celebrated his eightieth birthday recently. His house was filled with children and flowers and the mementoes of friends. He was serene and happy, with just a slight infirmity in respect of his organs of hearing. He was able to illustrate, in his own person, his dictum made some months before, that it was “better to be eighty years young than forty years old.”

The year 1809 was no mean year, for it gave us Holmes, Gladstone, Tennyson, Lincoln, and Darwin. A newspaper paragraph has appeared stating that Holmes, the genial, has grown cynical in his eightieth year, and the writer sees fit to offer Dr. Holmes the suggestion that he should take up his own early writings and thus revert to his original type of thought. In the first place, we beg to doubt the allegation concerning Dr. Holmes's cynicism, unless, perchance, he had been reading some of his own books and then reading some of those “just out”; almost anybody would feel like uttering a caustic word or two under those circumstances. In the second place, the advice to him to read his own books has no sting in it, as it might have to some authors who began by writing in a cynical vein and

repented of it afterward. A characteristic little story about Holmes's early days at the Harvard Medical School has found its way into print lately. Holmes, it is said, was about to give one of his anatomical demonstrations—he had only recently come from the Dartmouth school to take his professorship—and he was surrounded by a small company of his colleagues, most of them of great stature in comparison with him; and he seemed for the moment or two at a loss for words. But finally he said: "Why, gentlemen, do you know that I feel a little strange here? I feel like a small silver coin rattling round among just so many great big coppers." That broke the ice, the constraint was dismissed, and the lecture went smoothly on. Holmes had no fear of giants, as was seen when he measured foils with Hodge and Meigs regarding puerperal fever as an infectious disease. As he himself has said, "I had a savage pleasure, I confess, in handling those two professors—learned men both of them—skilled experts, but babes as it seemed to me in their capacity of reasoning and arguing."

THE SAMUEL D. GROSS PRIZE.

In a recent issue of the Journal appeared the advertisement of the first competition for the Samuel D. Gross Prize, the value of which is \$1,000. The will of Dr. Gross provides that there shall be an award of this amount every five years for the best essay in surgical pathology or practice. The Philadelphia Academy of Surgery will have charge of the conditions and terms of the competition. The successful competitor must be an American citizen. All essays, in the first contest, must be forwarded to the Academy before June 1, 1893.

A NEW "TRI-STATE" MEDICAL ASSOCIATION.

A CALL has been issued for a meeting of the physicians of Alabama, Georgia, and Tennessee, to be held in Chattanooga on the third Tuesday in October and the following day, for the purpose of forming an association. The call is signed by committees from the Jackson County (Alabama) Medical Society, the Chattanooga (Tennessee) Medical Society, the Cleveland (Tennessee) Medical Society, the Cartersville (Georgia) Medical Society, and the Dalton (Georgia) Medical Society. The membership is to be restricted to graduates of regular medical colleges in good standing, and it is announced that papers of interest have already been promised by prominent men.

THE AMERICAN SOCIAL SCIENCE ASSOCIATION.

THE proceedings of the association's meetings have generally included papers and discussions having more or less to do with medicine. There is now a Department of Health, of which Dr. H. Holbrook Curtis, of New York, is the chairman. At the recent annual meeting, held at Saratoga, the programme of the department included papers by Dr. Pliny Earle, of Northampton, Mass., and Dr. Stephen Smith, Dr. Louise Fiske Bryson, Dr. Frederick Peterson, the Rev. Charles R. Treat, and Dr. Charles A. Harvey, of New York.

ST. MARY'S HOSPITAL, BROOKLYN.

WE learn that this institution must very soon make an increase in its accommodations in order to keep pace with the demands made upon it. Although it already has nearly two hundred beds, a new ward will soon be arranged for and added. An out-patient department has been established near the hospital during the past year.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 3, 1889:

DISEASES.	Week ending Aug. 27.		Week ending Sept. 3.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	91	16	112	19
Scarlet fever.....	28	1	21	2
Cerebro-spinal meningitis....	2	2	3	2
Measles.....	17	3	21	1
Diphtheria.....	70	19	66	22

The American Gynæcological Society will hold its fourteenth annual meeting in Boston, at the Massachusetts Institute of Technology, on Tuesday, Wednesday, and Thursday, the 17th, 18th, and 19th inst., under the presidency of Dr. H. P. C. Wilson, of Baltimore. Besides the president's address and an address of welcome by Dr. J. P. Reynolds, of Boston, the programme includes the following titles: "A Case of Interstitial Pregnancy—Rupture of the Uterus and Laparotomy," by Dr. R. Stansbury Sutton, of Pittsburgh; "The Use and Abuse of Antiseptic Injections in Obstetric Practice," by Dr. H. J. Gargues, of New York; "A Digest of Twenty Years' Experience in the Treatment of Cancer of the Uterus by Galvano-cautery," by Dr. John Byrne, of Brooklyn; "The Nature and Limitation of Operative Treatment for Uterine Fibroids," by Dr. Paul F. Mundé, of New York; "The Diagnosis and Treatment of Fibroid Tumors," by Dr. W. Gill Wylie, of New York; "A Case of Sloughing Intra-uterine Fibroid," by Dr. Ely Van de Warker, of Syracuse; "A Case of Abdominal Lipoma simulating Ovarian Tumor," by Dr. Reeves Jackson, of Chicago; "Electrotherapeutics in Gynæcology," by Dr. G. Apostoli, of Paris; "Death from Visceral Lesions following Ovariectomy," by Dr. Henry C. Coe, of New York; "Renal Disease caused by Disease of the Pelvic Viscera," by Dr. George J. Engelmann, of St. Louis; "Pelvic Congestions *versus* Pelvic Inflammations," by Dr. S. C. Gordon, of Portland, Me.; "The Relation of Uterine Retro-deviation to Pregnancy," by Dr. A. Martin, of Berlin; "Nephro-lithotomy," by Dr. James R. Chadwick, of Boston; "Results of Repression of Menstruation," by Dr. E. C. Gehrung, of St. Louis; "Intermediate Trachelorrhaphy," by Dr. H. J. Boldt, of New York; "A Contribution to the Clinical History of Cystic Degeneration of the Ovaries, with a Report of Cases and Specimens," by Dr. R. B. Maury, of Memphis; "Partial Rotation of the Ovum in Early Pregnancy as a Cause of Placenta Prævia, suggested by Two Cases in Practice," by Dr. Edward Warren Sawyer, of Chicago; "The Protective Influence of Vaccination during the Intra-uterine Existence of the Fœtus," by Dr. Cornelius Kollock, of Cheraw, S. C.; "The Value of Laparotomy in the Diagnosis and Treatment of Minor Forms of Intra-abdominal and Intra-pelvic Disease," by Dr. T. A. Ashby, of Baltimore; "A Brief Report of my own Abdominal Work for the Year ending September 1, 1889," by Dr. R. Stansbury Sutton, of Pittsburgh; "The Surgical Treatment of Posterior Displacements of the Uterus," by Dr. W. M. Polk, of New York; and "The Effect of Ergot upon the Parturient Uterus," by Dr. John Goodman, of Louisville.

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from August 11 to August 31, 1889: By direction of the Secretary of War, a board of medical officers—to consist of HEGER, ANTHONY, Lieutenant-Colonel and Surgeon; SKINNER, JOHN O., and MORRILL, JAMES C., Cap-

tains and Assistant Surgeons—will assemble at the U. S. Military Academy, West Point, N. Y., on August 25, 1889, or as soon thereafter as practicable, to examine into the physical qualifications of the candidates for admission to the Academy. Par. 9, S. O. 185, A. G. O., August 12, 1889.

GARDNER, WILLIAM H., Major and Surgeon, Washington Barracks. Leave of absence for one month is hereby granted. Par. 1, S. O. 183, Headquarters Division of the Atlantic, Governor's Island, New York city, August 13, 1889.

MATTHEWS, WASHINGTON, Major and Surgeon. Promoted to Surgeon, with rank of Major, to take effect from the tenth day of July, 1889, *vice* Town, promoted. War Department, Washington, D. C., August 14, 1889.

HAVARD, VALERY, Captain and Assistant Surgeon. Leave of absence for one month, to take effect about October 1, 1889, with permission to apply to Division Headquarters for an extension of one month, is granted. Par. 3, S. O. 86, Department of Dakota, St. Paul, August 10, 1889.

PORTER, JOSEPH Y., Captain and Assistant Surgeon, now at Jacksonville, Fla., will, if the state of his health will permit, proceed to Jackson Barracks, Louisiana, by direction of the Secretary of War, and report to the commanding officer of that post for temporary duty and by letter to the commanding general, Division of the Atlantic. Par. 16, S. O. 186, A. G. O., August 13, 1889.

BAILY, JOSEPH C., Lieutenant-Colonel and Surgeon, Medical Director, Headquarters Department of Texas, San Antonio, is granted leave of absence for one month. August 17, 1889. S. O. 54, Headquarters Department of Texas.

POPE, BENJAMIN F., Major and Surgeon, is granted leave of absence for one month, with permission to apply through Division Headquarters for an extension of two months. Par. 7, S. O. 54, Department of Texas, August 17, 1889.

The commanding officer at Jackson Barracks, New Orleans, La., telegraphs the Adjutant-General of the Army that BROWN, HARVEY E., Major and Surgeon, died at Jackson Barracks on August 20th at 1.40 P. M.

TREMAINE, WILLIAM S., Major and Surgeon, now on sick leave of absence at Buffalo, N. Y., will, by direction of the Acting Secretary of War, report in person to the commanding general, Department of the Missouri, for assignment to temporary duty at the post of Fort Leavenworth, Kansas. Par. 4, S. O. 198, A. G. O., August 27, 1889.

The resignation of PORTER, JOSEPH Y., Captain and Assistant Surgeon, has been accepted by the President, to take effect August 29, 1889. Par. 11, S. O. 200, Headquarters of the Army, A. G. O., August 29, 1889.

Promotions.

MATTHEWS, WASHINGTON, Captain and Assistant Surgeon, to be surgeon, with the rank of major, July 10, 1889, *vice* Town, promoted.

To be assistant surgeons with rank of captain, after five years' service, in accordance with act of June 23, 1874 :

EWING, CHARLES B., Assistant Surgeon, July 5, 1889.

MCCAW, WALTER D., Assistant Surgeon, August 20, 1889.

Society Meetings for the Coming Week :

MONDAY, *September 9th* : New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *September 10th* : Mississippi Valley Medical Association (first day, Evansville, Ind.); New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly—Elmira) and Rensselaer, N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, *September 11th* : Mississippi Valley Medical Association (second day); New York Pathological Society; American Microscopical Society of the City of New York; Medico-legal Society; Medical Societies of the Counties of Albany and Montgomery (quarterly), N. Y.; Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

THURSDAY, *September 12th* : Mississippi Valley Medical Association (third day); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club; Pathological Society of Philadelphia.

FRIDAY, *September 13th* : New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); Medical Society of the Town of Saugerties.

Proceedings of Societies.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Continued from page 191.)

Dysphonia Spastica.—Dr. F. I. KNIGHT, of Boston, read a paper on this subject. (To be published.)

Dr. G. W. MAJOR, of Montreal: I have had one case of aponia spastica and two of dysphonia spastica. The case of aponia occurred in a boy of fourteen years of age with a well-marked history of hereditary syphilis. The two cases of dysphonia spastica were met with in adult young men, and in both Hutchinson's teeth were observed. In the case of aponia the vocal cords closed spasmodically on phonation, and altogether acted much in the same manner as in defecation. I noticed in this case also a spasmodic action of the diaphragm synchronous with the closure of the cords. Under treatment no satisfactory improvement occurred. The thought has more than once suggested itself to me that there may be some relation between syphilis and spastic aponia.

Dr. S. W. LANGMAID, of Boston: I reported one case fifteen or sixteen years ago, and in that case everything I tried was unsuccessful. The patient always prescribed for himself a little whisky when he had to use the voice, and that answered for the time being. The condition seems to be about the same as at that time.

Dr. D. BRYSON DELAVAN, of New York: In one of the cases referred to by Dr. Knight the same phenomena were observable as in the case mentioned by the last speaker. The patient, after fortifying himself with a stimulant, would talk tolerably well. I had him under treatment for two months, and he seemed to improve under local applications to the larynx and vocal training, especially directed to the management of the breathing, and it seemed that if the training could have been continued long enough the trouble might have been done away with.

Dr. F. I. KNIGHT: I really believe that more cases have been seen than have been reported. I should like to have had some opinion upon the idea of Lennox Browne that these cases are not infrequent.

Dr. C. E. BEAN, of St. Paul: About two years ago a case was

referred to me by a physician in St. Paul. The patient was a man, twenty-five years of age, with a syphilitic history, suffering with aphonia spastica. I had him under observation two months, using galvanism, faradism, strychnine, etc., without the slightest benefit. He is now in about the same condition as at that time.

Some of the Manifestations of Syphilis of the Upper Air-Passages.—Dr. T. A. DE BLOIS, of Boston, read a paper with this title. (To be published.)

Dr. F. H. BOSWORTH, of New York: I am sorry that the speaker did not touch more upon bone lesions, which I consider the more important feature of the tertiary syphilitic manifestations in this portion of the air-tract. There is still one question undecided, and that an exceedingly important one, and that is, How far is the bone involved in these deep ulcerations of syphilis? Of course the ulcerative process means ultimately a necrosis of the bones to a great degree covered by the original gumma, and the question is not only how far is the bone involved, but also what is the ultimate tendency? My own view is that the syphilitic manifestation in the deep layers of the periosteum of the hard palate expends its virulence in the primary deposit of the gummatous material, and that the morbid process now becomes mainly a local one, which consists in the development of an endarteritis, as has been shown so clearly by Schüster and Sänger, under the action of which localized necrosis or ulceration of the soft parts ensues, purely as the result of a shutting off of the normal blood-supply. As a final result, the nutrition of the bone is interfered with and bony necrosis takes place. The primary deposit of gummatous material limits the extent of the necrosis, so that the idea of the extension of the ulceration is not correct.

Taking this view, I think that the ulceration is not the important thing; it is the bone. Deal with the bone and the ulceration will take care of itself. After the primary breaking down of the gummatous material, the maintenance of the ulceration is dependent upon the necrosis of the bone, so that removal of the diseased bone is an important part of the treatment.

The point which I desire to make here is that the original gummy deposit occurs as the result of the constitutional disease; the ulceration is a local process, the necessary result of the pathological features of the gummatous material causing an endarteritis; furthermore, the ulceration is limited by the original gummy deposits, and no new gummy matter is deposited later, except as a new explosion of the disease, as it were; a gummy deposit occurs suddenly, and is not progressive. Bony necrosis results from the gumma, and, a bony sequestrum being formed, this becomes the prominent feature of the local disease in that it keeps up the ulceration by its mere presence, as of a foreign body.

I indorse Dr. De Blois as regards the treatment in the administration of potassic iodide and not the use of mercurial until the lesion has disappeared. After the syphilitic lesion has disappeared, then mercury should be given for the removal of the syphilitic virus. As regards operative treatment, it had better be let alone until the syphilitic virus is thoroughly under control.

Dr. C. C. RICE, of New York: In regard to operation in cases of adhesion of the soft palate to the posterior wall of the pharynx, one point must not be forgotten—viz., that in some of these cases there is extensive cicatrization and contraction in the post-nasal pharynx above the line of adhesion; consequently, after the lower adhesions have been separated, we do not get the good results, so far as nasal respiration is concerned, that we should expect. The reason of this failure is that the cicatrization in the post-nasal pharynx still remains. This part of the operation should be attended to, and is as important as

the freeing of the lower adhesions. It has been said that we should not operate until the "force of the specific disease has spent itself," but it is difficult to determine when this point has been reached. I have had a case within a year where there was complete adhesion and in which there had been no manifestation of a syphilitic process for many years. The patient had taken medicines, and was apparently cured. I separated the adhesions with the galvano-cautery, but the ulceration produced by the operation refused to heal kindly, and extended somewhat, in spite of all that I could do in the way of constitutional and local treatment. I have found that there was less tendency to readhesion where the galvano-cautery was used with a low grade of heat than when cutting instruments were employed. I have lately heard of an operation which has been tried in New York for the relief of these adhesions. An ingenious physician has made a perforation through the line of adhesion with the galvano-cautery, and a ring has been passed through this and worn until cicatrization has taken place, and then he has freed the adhesions in the circle of the ring. This, it is maintained, will prevent readhesion.

Dr. J. N. MACKENZIE, of Baltimore: Dr. De Blois has referred to the dangerous symptoms from the extension of the ulceration into the accessory sinuses, principally the antrum. I would like to caution the members of the association, if they have not had a similar experience, against the too vigorous removal of diseased bone from the nasal passages. You frequently pull out more than you want, and from dangerous regions. I have not had this occur in my own practice, but I have seen it in that of others. I have seen a portion of bone drawn out, and some of the brain membranes with it.

I had a very sad case on my hands a few years ago—that of a lady who had acquired or inherited syphilis. I removed nearly everything in the nose—the turbinated bones and the sides of the antrum of Highmore, and finally the perpendicular plate of the ethmoid became so loose that I removed it. The plate of the ethmoid which had been removed had attached to its upper surface a portion of membrane, but I am in doubt as to its nature. I placed her on the use of iodide of potassium and stimulating and nutritive treatment, and she remained well for two years. She was then taken with a violent headache and a profuse fetid discharge from the nose. This headache passed off in a few days, and she did not consult me until two weeks after the headache had first appeared. I found that the process had broken out again and had invaded both antra. Offensive pus was discharged through the mouth and throat and every possible way of escape. I began vigorous antisiphilitic treatment, and did everything that I knew of to relieve her, but she finally went into a state of coma, and had general convulsions. Symptoms of meningitis set in, from which she died. I am of the opinion, from my examination and digital exploration of the case, that the process extended to the brain, not through the nasal passages, but that ulceration had penetrated through some other avenue. A post-mortem examination was not allowed, so that I can not prove this point.

I fail to comprehend the point made by Dr. Bosworth. Do you leave the ulceration alone and just pay attention to the bone?

Dr. BOSWORTH: The original deposit of gummatous material limits the extent of the ulceration. The ulceration does not extend beyond. I do not believe that it invades the antrum unless there has been a primary deposit in the antrum. Of course, the ulcer is to be treated, but it can not be cured until the prominent perpetuating cause has been removed—viz., the necrosed bone.

Dr. MACKENZIE: What are the clinical facts to support this view?

Dr. BOSWORTH: Syphilis shows a tendency not to transgress anatomical boundaries. It extends only so far as the original deposit of gummatous material. The syphilitic ulceration does not extend from one place to another. Furthermore, I believe that clinically the extent of the swelling, tumefaction, and redness indicates the extent of the gummatous deposit.

Dr. MACKENZIE: I am not prepared to accept or deny this view, which, if it can be proved, marks a decided advance. It would almost revolutionize our treatment.

Dr. W. H. DALY, of Pittsburgh: I am somewhat surprised at the statement of my friend, Dr. Rice, that he, a man of acknowledged ability, had used the galvano-cautery knife in freeing the adhesions of syphilis. I am very glad that he has brought this up as a warning to others. I should consider it a very bad method of practice to use the galvano-cautery on any adhesions of such low vitality as syphilitic tissues. There is also a great tendency to the readhesion of cauterized tissues. I believe that the galvano-cautery is a very much abused instrument, but abused by its friends. I believe that it is often used by skillful practitioners from an unfounded fear of hæmorrhage in the use of the knife. I feel satisfied that we can always obtain better results in the fauces, in the nose, in the larynx, and, in fact, in any operation anywhere, if we do it with a sharp cutting instrument and allow as free hæmorrhage as is consistent with good judgment and safety. In other words, the freer the hæmorrhage within certain limits, the more certain are we to have immunity from septicæmia and the more certain to have rapid union with satisfactory results. While I think that the galvano-cautery knife is a useful instrument, I think that it is a very much abused instrument. I am glad that my eminent and able friend, Dr. Rice, has made this honest confession. It may be a warning to others less experienced than himself.

Dr. H. L. SWAIN, of New Haven: I should like to hear if there is any way of proving the statement that ulceration takes place only in the portion where there has previously been a gummatous deposit. It would seem that we have a contradiction of this view in the secondary ulcerations which occur in the course of treatment where everything is apparently healthy and there is no evidence of gummatous deposit. These new ulcerations come in different places from those in which ulceration first occurred.

Dr. J. C. MULHALL, of St. Louis: I can scarcely let the statement of Dr. Bosworth pass without question. How does he explain the cases of tertiary syphilis in which almost every portion of the bony framework of the nose is involved? Does he say that there are gummatous deposits involving the nasal cavities *en masse*? Every one of us has seen cases of tertiary syphilis where hardly any portion of the boundary of the nose was uninvolved. I therefore take issue with his assertions, first, that gummatous deposit must take place before ulceration; and, second, that the limits of the ulceration will not extend beyond the first deposit of gummatous material.

Dr. F. H. BOSWORTH: The investigations of various observers have shown the cause of the ulcerations of syphilis. It has been shown to be due to the gummatous deposit. That is the only explanation that we have of the ulceration. The explosion of syphilis consists in the deposit of gummatous material under the mucous membrane, and the explosion exhausts itself in that deposit, but the local process goes on. There is no subsequent deposit until there is another explosion. The thing exhausts itself for the time being. Syphilis involving the whole nasal cavity is not due to extension. I have looked for it, but I have not found it. Ulceration occurs only where the original deposit took place. Subsequent deposits may involve other portions of the nose. I think there is no clinical evidence show-

ing the extension of a syphilitic ulceration of the variety under discussion.

Dr. A. T. DE BLOIS: The discussion has taken so wide a field that it is difficult to touch upon the points that have been brought up. I would only say in regard to the assertion of Dr. Bosworth that we should remove the bony structures and let the ulceration take care of itself, that it is very difficult to say how far the ulcerative process in the bone has extended. I have seen these ulcerations heal after a very slight scraping, while in other cases the whole bone has had to be removed. When ulceration occurs in the soft parts, we can not let it absolutely alone. It will heal, but it will heal open, and you will have all of the distressing results which follow that condition.

Some Unusual Manifestations of Tuberculosis of the Larynx.—Dr. C. C. RICE, of New York, read a paper on this subject. (See page 234.)

Dr. W. H. DALY, of Pittsburgh: There are two points with reference to tuberculous disease of the larynx which I believe are worth noting. I have demonstrated to my own satisfaction in several cases—three or four—that tuberculous ulceration of the larynx can be cured. In these cases I could discover no syphilitic complication either inherited or acquired. I have arrived at this belief contrary to the teachings that I had received from men in whom I had confidence as teachers and authors. In so far as the treatment was concerned, it was the most approved constitutional treatment, but I do not believe that the constitutional treatment had as much influence as the persistent careful local treatment. If I were to be denied one or the other in the treatment of tuberculous ulceration of the larynx, I should certainly elect to be deprived of the constitutional treatment. The local treatment resolved itself into a question of cleanliness and antiseptic, and to this end one can use what he pleases. In the cases referred to, recovery took place under the persistent use of alkaline sprays and inhalations followed by the free use of iodoform—not iodoform modified by any medicament to correct the odor, but iodoform pure and simple.

There is another point. It may seem like rank heresy, but I believe that tuberculous ulceration of the larynx occurs as a local disease—that is to say, it may occur in patients with no evidence of tubercular deposit elsewhere. There are in Pittsburgh two such cases; one of them I saw a day or two ago. The patient is a clerk in a jeweler's store, an occupation anything but favorable to the maintenance of a cure. For over a year that young man has been working hard at long hours. The voice is somewhat affected by the diseased action and changes in laryngeal structure which took place before he came under my care, and a part of the epiglottis is gone. After he was placed under treatment there was little further destruction. He is now ten or twelve pounds heavier than before his illness and twenty or twenty-five pounds heavier than when he came under my care. I regard the case as a cure. The diagnosis was confirmed by the microscopical examination made by a competent young gentleman after the method of Koch. There was no evidence of lung disease. Being a strong believer in the theory that tuberculous, strumous, and scrofulous diseases are the offspring of syphilis, I investigated this point very closely in this case to place it where it belonged.

Dr. J. C. MULHALL, of St. Louis: I am glad to congratulate Dr. Daly on having cured laryngeal phthisis. I, however, think that his position is a hard one to maintain, for this reason: It is easy enough to get microscopical proof of phthisis in the presence of the bacillus without phthisis existing, for in the secretions of the mouth and throat of even healthy individuals this bacillus is sometimes found. Again, I do not doubt that there is such a thing as catarrhal ulceration of the larynx. If we take

these two facts into consideration with the fact that catarrhal ulceration can be cured, we can understand how one might readily fall into error.

That laryngeal phthisis is ever primary is also difficult to prove. That it is sometimes the first sign of the condition there can be no doubt. We also know very well that tubercular disease may exist in the lungs and not be accessible to physical examination. Post-mortem examinations have proved this. Post-mortem examinations have also proved that in every case of laryngeal phthisis there is pulmonary phthisis. It is said by experts in lung disease that unless the lung is diseased in a portion of the size of a silver dollar, its presence is readily overlooked. It is therefore easy to be deceived.

That laryngeal phthisical ulceration can be healed I have no doubt, but that it can be cured I do doubt. After our attention was called to the value of lactic acid I at once made use of it in tubercular ulceration of the larynx, and I have seen the ulceration heal on one side and appear on the other side. I went one step further than the one who recommended this agent, Krause, and applied the pure lactic acid after spraying with cocaine. Clinically I know that laryngeal ulcerations of a phthisical character will heal under the influence of pure lactic acid. I have seen them heal in the pharynx in a dying patient. I, however, can not say that I have ever seen life prolonged to any appreciable extent.

I was once a firm believer in the theory that ulceration never occurred in chronic catarrhal disease. I have had two physicians under my care. One had a terrible cough for two years, his health had run down, and he had quite a large ulceration in the larynx, which rapidly healed in the course of a month under lactic acid. The cough lessened and he improved in weight and constitutional condition and was entirely cured. This was not a tubercular ulceration.

Dr. F. I. KNIGHT: How do you know that it was not tubercular?

Dr. W. H. DALY: What are the characteristics of catarrhal ulceration?

Dr. J. C. MULHALL: Catarrhal ulcers occur usually in some part of the larynx where there is a great deal of friction and come on after a distinct history of severe laryngitis. The ulcer has clean-cut edges and not the creeping edges of the tubercular ulcer; is single and unaccompanied by other familiar signs of laryngeal tuberculosis.

Dr. F. I. KNIGHT: The first point raised by Dr. Rice is certainly interesting. I have had a great deal of trouble in the diagnosis of these cases. It is hard enough to make an accurate diagnosis where we have only one disease to deal with. In some cases where I have been almost sure enough of my diagnosis of tuberculous disease of the larynx to let the patient go without constitutional treatment, I have been happily disappointed in seeing the ulceration disappear under specific treatment. These mixed cases are certainly annoying, and the only thing that we can do in endeavoring to make a prognosis is to find out if we can which disease predominates, for, although there may be evidences of tubercular disease elsewhere, the effect of specific treatment may be very satisfactory if that element has entered into the case.

In regard to the possibility of tubercular ulceration being cured, I have not the slightest doubt that such ulceration in the larynx has got well just as in other parts. That it will heal under mild treatment I have proved by the effect of alkaline applications and iodoform. I have no question that lactic acid will heal tubercular ulcerations more quickly and certainly than anything yet proposed, but after we have them healed they do not stay healed, unless we happen upon the time when the patient is ready to recover and the ulcer of the larynx is the last

point to be cured. If the pulmonary disease is in a quiescent condition and the digestion is good, and there is this one lesion in the throat which is the particular thorn, I believe that in some cases, if we heal that, we get what is practically a cure. If the disease in the lung is active and the patient is miserable in other ways, the cure of the ulcer in the throat is not going to do much good.

I have seen what I suppose Dr. Mulhall calls catarrhal ulcerations. They are catarrhal. I should call them abrasions occurring in acute inflammatory conditions; but where there is loss of substance, as in the case referred to by Dr. Daly, I should, in considering the diagnosis, rule catarrhal ulceration out of consideration.

In regard to the occurrence of tubercular ulceration as a primary affection in the larynx, I see no reason why we should doubt that it may occur there as well as anywhere else. I think, however, that all who are familiar with this class of cases and are tolerably competent in physical diagnosis will agree that in the vast majority of cases careful examination will prove that there is disease in the lung, and in other cases, where we do not get positive physical evidence, we find rational symptoms which would lead us to infer that there is pulmonary disease. I have had many cases brought to me as illustrations of primary tubercular disease of the larynx, but, on careful examination, I have found good evidences of disease at the apices of the lungs. In other cases I have failed to get physical signs, perhaps because they did not exist. Sometimes a condition of glottic rigidity prevents us from getting the signs that may be present.

The earliest signs of tuberculosis of the lungs are by no means changes in resonance on percussion and in the respiratory murmur which many seek for, but they are localized râles which are only obtained upon coughing, and a cough properly made. In my experience this is an early sign. Many physicians examine a patient without asking him to cough. I once saw a distinguished professor of Vienna make this mistake. He examined a patient in my presence and said there was no phthisis. I asked him to try the cough, and he found an abundance of localized high-pitched râles, and corrected his diagnosis. Most patients when asked to cough take a deep inspiration, cough, and at once breathe. The deep breath which they take before may spoil the râle, or, if they breathe too soon after the cough, the râle may not be heard. The patient should cough from a rest and not breathe immediately before or immediately after he coughs. In that way in many cases we get an explosion of râles, which we should not otherwise hear. I have seen very few cases in which it seemed to me that the tubercular disease was primary in the larynx. If we get a case where the disease is primary and localized, and cure the ulceration, I do not see why it should not remain cured, unless there is subsequent infection.

The other points in the paper are interesting. I have seen anterior adhesions occur from other causes, but not from tubercular ulceration. I had recently a notable case—one of eut throat.

I have not seen an isolated tubercular tumor such as Dr. Rice describes.

Dr. W. E. CASSELBERRY, of Chicago: I wish to support the position of Dr. Mulhall with reference to catarrhal ulceration. A year or so ago I saw a physician of Chicago who had suffered from recurrent attacks of laryngitis, suspected to point toward tuberculosis, for which reason he had spent three winters in the South, much to the detriment of his affairs. At this time he had an elongated uvula, occasioning a good deal of cough, and the larynx and naso-pharynx were in a catarrhal state. I first excised the uvula. There were no ulcers at this time. A few weeks later he appeared with a small but pronounced superficial ulcer on the epiglottis, not much more than an abrasion,

but still with distinct loss of substance, and a smaller ulcerated spot on the false vocal cord. I told him that these were catarrhal ulcers, and did nothing for them beyond keeping the parts clean, and in a week or ten days they disappeared. He has since been perfectly well.

I am glad that Dr. Rice called attention to the rather common coexistence of tuberculosis and syphilis. It has been my conviction that the existence of either one of these diseases predisposed to the other; that one of the dyscrasias having attacked the larynx, a favorite site for the manifestations of either, predisposed that organ more than ever to the invasion of the other disease.

Dr. J. N. MACKENZIE, of Baltimore: I fully indorse the statements of Dr. Knight concerning the presence of localized râles as indicative of incipient tuberculosis, and I have found that where they can not be heard over the apices they can often be heard behind the scapula. By this means I have often been able to make a very early diagnosis of tuberculosis.

The question of the existence of primary tuberculosis of the larynx has been raised. This is a question which can only be determined by the scalpel. Dr. Orth, professor of pathological anatomy in the University of Berlin, in a work published some years ago, describes such a case. All the organs of the body were examined, but the larynx was the only one in which tubercles were found. I think the patient died of the tuberculosis. Primary tuberculosis of the larynx has been demonstrated in the same way by other observers.

Dr. Mulhall has already stated what I was about to say, that while undoubtedly tubercular ulceration of the larynx will heal, yet the healing of the tubercular ulcer in the larynx by no means indicates the cure of the disease. The same thing may be said of tubercular ulcers of this region as was said of syphilis by Vidius, "They make many truces, but never peace."

As regards isolated tubercular tumors, which were first brought to the notice of the profession by myself, I should like to refer to one of the cases in which death occurred from carcinoma of the stomach and liver. At the post-mortem examination tubercular cavities were found in the lung. In the trachea there was a small tumor, which I described, and which I took to be an isolated carcinomatous nodule in the trachea, of which only a few cases had been reported. I removed the nodule carefully and submitted it to microscopical examination, and was astonished to find that it was of a tubercular nature. It presented distinct miliary tubercles in all stages of degeneration, set in a dense network of fibrous connective tissue. In this case a nodule, resembling in structure the tracheal growth, was found in the pericardium. The patient died, not of tuberculosis but of the carcinoma. The tuberculous process in the lung was, however, well marked.

I have several times seen the coexistence of syphilis and tuberculosis of the larynx, and the diagnosis is one of great difficulty. In all such cases we have to resort to the test of treatment.

With reference to catarrhal ulceration of the larynx, while I should not like to absolutely deny the existence of such a condition, I have never seen it. By ulcer I do not mean the erosion or abrasion of the larynx which results from coughing or the application of an instrument, but I mean a well-marked, distinctly excavated ulcer—a true ulcer. In my experience such an ulcer is indicative of some constitutional trouble, whether it be syphilis, tubercle, or what not; it is generally indicative of a dyscrasia.

In regard to the treatment of laryngeal tubercular ulcers by harsh methods—such as the application of lactic acid, which is, perhaps, less harsh than some others, the application of the galvano-cautery, and the treatment of Schmidt, of Frankfort-on-

the-Main, by incision of the infiltrated tissues—I am glad to say that the common-sense, conservative element of American laryngology is decidedly opposed to such measures, which I believe do more harm than good. I have never had a patient in private practice who would have allowed me to resort to such measures, even had I desired to do so.

There is a form of ulceration which occurs in the later periods of tubercular disease which is found principally in the lower part of the trachea and near its bifurcation and in the bronchi, but which may be found higher up in the larynx and in the pyriform sinus. In 1881 I published a paper in Berlin in which I dealt in an elaborate way with this question. These ulcers resemble the so-called aphthous ulceration of the old Rokitansky school, and the so-called diphtheritic ulcer. The tissue becomes invaded with a rapid cell proliferation, necrosis occurs, a slough follows, and ulceration is the result, but it presents none of the characteristics of the true tubercular ulcer. I mean by a true tubercular ulcer one that is formed by the breaking down of myriads of miliary tubercles. These ulcers may or may not contain bacilli. Orth speaks doubtfully upon the subject, but seems to regard them as tubercular. Dr. Osler has found the same ulceration in the rectum, and has been at work upon the subject, but I do not know what conclusions he has reached. It is, however, readily conceivable that these ulcers may easily heal. I have no doubt that many of the so-called healed tubercular ulcers are nothing more than healed aphthous erosions which have been produced by the corrosive action of the sputa in the later stages of the disease.

Dr. WILLIAM C. GLASGOW, of St. Louis: A good many years ago I stated my belief that tubercular ulceration of the larynx was never healed. My experience since then confirms me in that belief. I have heard a great deal and read a great deal about tubercular ulcerations being healed. There is a common belief that any ulceration in the larynx, not syphilitic or lupoid, is tubercular. I have seen many ulcers of the larynx heal. I have seen them heal in cases of pronounced phthisis where the physical signs demonstrated phthisis, and I have seen them heal where there were few or no physical signs of this disease. I do not consider these ulcers tubercular. They heal under the simple treatment of which Dr. Daly speaks and which I have used for fifteen years—that is, iodoform and morphine by insufflation. I recall one case in which a man in the last stages of phthisis, with large cavities in the lungs, hectic, etc., was unable to swallow on account of a large ulcer on the posterior portion of the larynx. Under the use of iodoform he was able to swallow, but died in a short time. I did not consider this a case of tubercular ulceration. I have used lactic acid, but have not found it as useful as others claim. I think that iodoform has given me better results.

One remedy that I have used with great success in the last two years is peroxide of hydrogen. I have seen these ulcers heal almost miraculously under a simple spray of peroxide of hydrogen. A case came to me last spring with two thirds of the epiglottis destroyed. The lungs were examined with negative result; no bacilli were found. Under the use of peroxide of hydrogen the ulceration or seeming ulceration, for I do not think that it was true ulceration, entirely disappeared, and the patient was able to swallow. The destructive process took a fresh start on the ventricular bands—first on one side and then on the other—and this continued until death. Repeated examination of the lungs and of the sputa developed nothing until September, when bacilli began to appear. This man died of marasmus, and at the time of his death the râles of which Dr. Knight spoke were appreciable at the apex of one lung. His death occurred within a month of their development.

I do not believe in primary tubercular disease in the larynx.

In all the cases that I have seen there has been more or less disease of the lung. In addition to true tubercular ulcers, I have seen catarrhal ulcers and others which I have not been able to define, but I do not consider them tubercular. Some of these ulcers occur in the condition of septic œdema described in my paper. In true military tuberculosis of the larynx I have always found some evidence of disease in the lungs, and these cases have never recovered.

Dr. W. H. DALY: What is the value of the tubercle bacillus as a means of diagnosis? Dr. Glasgow states that it was present in one of the cases to which he has referred.

Dr. GLASGOW: Its presence demonstrates tuberculosis. Its absence does not demonstrate anything.

Dr. C. C. RICE: The different points in the discussion have been thoroughly covered. I have been particularly impressed with one thing, and that is the radical change in the opinion expressed to-day as compared with that expressed by this association four or five years ago. If the gentlemen will take the pains to compare this discussion with that on the same subject four years ago, they will find that there has been a radical change in the opinion of this association in regard to the curability of tubercular ulceration. I refer to the discussion on Dr. Cohen's paper. The opinion expressed at that time was to the effect that these ulcerations were rarely if ever cured. The prognosis, so far as the laryngeal manifestations were concerned, was exceedingly bad. I have been surprised during this discussion to hear of the number of cases of laryngeal ulceration that have been cured. I am at a loss to understand the character of the large number of ulcerative cases referred to by Dr. Glasgow which he believes to be neither syphilitic nor tubercular. Ulcerations which belong to neither of these affections are exceedingly rare in my opinion. The catarrhal ulceration spoken of is a very uncommon manifestation. I do not refer to slight erosions. I do not believe that a catarrhal ulcer can occur unless, in addition to the acute inflammatory condition, there is a direct traumatic cause, such as friction and an explosive cough. We often see erosions. They occur on the tip of the epiglottis where it comes in contact with the tongue. They occur on the vocal bands where they rub against each other. I do not believe that catarrhal ulcers are seen on the sides of the larynx. If ulcerations of any size are found in that location, I should look upon them with suspicion. We know that primary tuberculosis of the larynx is very rare. In the treatment of laryngeal tuberculosis I think that more reliance is to be placed on milder drugs than upon the use of acids and surgical measures, etc. Cleanliness and the use of cocaine to allay irritability of the larynx is important. This, with iodoform, seems to me to furnish the best means of benefiting these patients.

Report of Two Cases of Buccal Tuberculosis.—Dr. C. E. BEAN, of St. Paul, read a paper with this title. (To be published.)

Dr. D. BRYSON DELAVAN, of New York: As Dr. Bean referred to a case which I reported, it may interest the fellows to know that the patient is still living. I heard from him three months ago, and there has been no recurrence of the tubercular disease. I reported my experience in the paper referred to. In regard to lactic acid I can only substantiate the statements made by Dr. Knight—that it does have a marked influence in certain of the milder ulcerations, which are neither deep nor extensive. It heals them for a time. In the more severe ulcers, while it improves, cleanses, and enlivens them for a time, it is not curative. In a case recently seen there was what appeared to be a large tubercular ulcer at the tip of the tongue of the size of a ten-cent piece. The unusual feature of this case was that pain was entirely absent. Syphilis was carefully looked for, but there was no evidence of its presence, while there was exten-

sive pulmonary disease. Microscopic examination proved that the ulcer was not tubercular, but epitheliomatous, thus illustrating the difficulty of making a positive diagnosis in ulcerative lesions of the tongue.

Dr. C. E. BEAN: There is nothing more to be said. The subject has been thoroughly gone into in the previous discussion. The treatment, aside from the use of the eurette, is in no wise different from the treatment of tuberculosis of the larynx.

The Local Treatment of Diphtheria.—Dr. J. C. MULHALL, of St. Louis, read a paper on this subject. (To be published.)

Dr. WILLIAM C. GLASGOW, of St. Louis: I am one of those who believe that diphtheria is a blood disease rather than a local affection, and the only objects of local treatment that I see are cleanliness, disinfection, and the loosening of the membrane. There is one remedy which I have found valuable in loosening the membrane. It is the peroxide of hydrogen used as a spray. Last winter I was called in consultation to see a young girl where the membrane had invaded the larynx. The symptoms were so urgent that I advised the gentleman in charge to stay all night, and stated that I thought tracheotomy would be needed. As a preliminary, I recommended the use of the peroxide of hydrogen by the atomizer. After a few applications a large piece of membrane was thrown out. The next day the larynx was much clearer, although there were still portions left. That was the only local treatment employed in this case. Every hour a gush of the peroxide was thrown into the larynx. It produced a veil of foam, as it always does, and it seemed to lift up the membrane by the formation of gas. This patient entirely recovered. I look upon the local treatment simply as an adjuvant. I think that the constitutional treatment is the main thing. The constitutional treatment that I have found most successful is that by bichloride of mercury and benzoate of sodium. This is combined with very simple local treatment. There are cases of diphtheria where more local treatment is necessary. In these cases the method which Dr. Mulhall has described would be of value.

Dr. D. BRYSON DELAVAN, of New York: I think that not only the general practitioner but also a great many specialists can not receive too much warning as to the importance of the early detection of the extension of diphtheria to the nasal passages. I have seen case after case in the hands of well-known specialists where any chance that the patient may have had was lost by the neglect of reasonable precautions.

During the past ten years I have used the bichloride and the cyanide of mercury in the treatment of diphtheria, with increasing confidence in the value of these drugs. As is now well established, the bichloride of mercury is the most active destroyer of the streptococcus known.

Dr. W. H. DALY, of Pittsburgh: I do not know that I should transgress the bounds of this discussion if I were to allude to the treatment that I brought to the notice of this association in Philadelphia in 1887.* I think that it is probably as active and efficient as a local remedy as it is active and efficient as a constitutional remedy. Of its constitutional action I shall not speak. I refer to large and oft-repeated doses of calomel, untriturated, unmixed with sugar. I have in my possession large numbers of personal letters, from general practitioners from distant and near parts of this country and abroad, thanking me for having given to the profession my experience in the use of calomel in the treatment of diphtheria, and I take the liberty of again bringing it to your notice in connection with this paper

* "The Simplest and Most Efficient Treatment of Diphtheria," "Transactions of the Amer. Laryng. Assoc.," 1887, read at the Philadelphia meeting.

more especially with reference to its local effect. I believe that a large part of the valuable therapeutic effect of calomel administered as I recommend it—that is, two, three, four, or five grains every two hours to a child one and a half or two years old—is due to the local action of the drug upon the diphtheria poison in the fauces. I feel sure that the gentlemen who try that treatment will not be disappointed. I presume that it is your experience, as it is my own, that many cases of diphtheria that come under our observation are in an advanced stage and are in the hands of the general practitioner, and we do not have that full control of the case that we should if it were in our own hands; but if you will investigate this treatment and try it, I promise you that you will not be disappointed. The treatment is very simple and easy—simply floating the calomel on a teaspoonful of ice-water and opening the child's mouth and putting it in. If it is swallowed, well and good; if a portion remains in the mouth and fauces, well and good. I hope that you will pardon me for again bringing this to your notice. This is a valuable and tried therapeutic measure and not a new one.

Dr. HARRISON ALLEN, of Philadelphia: I have found trypsin useful in removing the membrane. It is purely a local agent. I apply it directly to the membrane, and it is best used where you can see the membrane, but I have not hesitated to carry it by curved probes to the lower part of the pharynx and to the larynx. It is of a pasty nature when mixed with mucus and readily adheres. A piece of absorbent cotton is put on an ordinary holder, slightly moistened, and dipped in the trypsin, lying on a watch glass. A large portion adheres, and this is then carried to the affected surface. The ordinary act of deglutition will not dislodge it.

A lady, the wife of a physician, was under my care last winter. She appeared to have had an ordinary tonsillitis. I plunged a lancet into the mass but found no pus. At my next visit I found the whole tonsil covered with diphtheritic membrane. The lady was extremely ill. In this case I had the happiest effect from trypsin, and I believe that it saved her life. The membrane did not extend beyond the point first affected.

Dr. S. JOHNSTON, of Baltimore: In the discussion on Dr. Daly's paper I called attention to trypsin and stated how valuable it had been in the cases in which I had used it. I then predicted that it would be used universally as a local measure in this disease. Since then, in several instances, I have found it a most useful solvent of diphtheritic membrane. I am glad to hear Dr. Allen's remarks.

Dr. J. C. MULHALL: I am sorry that the main object of my paper has been overlooked, and that was the method of carrying out the application, not of using any particular remedy. I may therefore presume that my method is peculiar to myself.

I purposely omitted to touch upon the constitutional treatment of the disease. I am afraid that the effect obtained by Dr. Daly from calomel is a constitutional effect. Looking into the throat when the membrane is beginning to separate, we find a good deal of catarrhal secretion, and I do not see how the application of any powder could affect the tissues underneath without first the complete removal of the secretions above.

Peroxide of hydrogen is certainly a valuable local agent. I have used it as well as trypsin and other solvents extensively, but I think that I get more rapid solvent effects from papoid.

I am sorry that more was not said about getting rid of the poison in the throat. This was the prime object of the paper.

Some Manifestations of Lithæmia in the Upper Air-Passages.—Dr. F. W. HINKEL, of Buffalo, read a paper on this subject. (To be published.)

Dr. WILLIAM C. GLASGOW, of St. Louis: I have listened with pleasure to this paper, and I think that such papers are

what we particularly need in directing attention to the constitutional origin of local troubles. There is no doubt that a great deal of local trouble is due to constitutional changes. I have seen the cases referred to, but I have not looked upon them as lithæmic. I have not been able fully to explain them. I have understood them so far as not to use local treatment. The success that has attended remedies directed to the constitutional condition and to the stomach and digestive organs has been sufficient. These cases I have called gastric, from the occasional eructations of gas and fullness after meals; but in some of them there have been slight evidences of dyspepsia. An abnormal fermentation may be the provoking cause. In all of them I have found the use of bichloride of mercury in minute doses with bismuth and bicarbonate of sodium efficient. An old lady, who had suffered for two weeks with a trouble of this kind, recovered in a few days under this simple treatment. I have seen many such cases. Perhaps they are lithæmic, but I have looked upon them as due to a disorder of the stomach or viscera. The paper is valuable in drawing attention to the possible constitutional nature of these local disorders.

Dr. HARRISON ALLEN, of Philadelphia: This is certainly a most excellent paper. There is need of defining this notion of lithæmia more accurately. In the paper referred to as written by myself, I attempted to separate the signs by which lithæmic sore throat could be separated from the gouty. There is one phase of the subject which has not been alluded to; that is, that in adolescents you get a type of throat which is very puzzling. Young, vigorous people, especially young men, will have a lithæmic sore throat which is very puzzling. These cases resist local treatment. Reverting to the discussion of yesterday on Dr. Roe's paper, suppose such a condition existed and you used the bistoury or cautery, you would at once excite a traumatic pharyngitis. The throat is of the color of a boiled lobster. I find this condition generally in those living in luxurious homes; I believe that they are over-fed and under-exercised. In Philadelphia we have a great deal of luxury, and there is a large class that eat too much. This is a matter of common comment among school-teachers. The testimony of teachers is that many of these young persons do not get along in their studies as well as they should on account of foolish luxury in their homes. If this is the case, we can understand that in its crude form this added material is useless if not injurious. It seems to me that the use of too much sugar, starch, and rich wine would produce the condition of which Dr. Hinkel speaks. We, however, can not prove this position, for it is impossible to control the habits of these patients.

Dr. D. BRYSON DELAVAN, of New York: These cases are commonly met with among the over-indulged children of wealthy and injudicious parents. The average child will not select the most wholesome varieties of food if allowed to choose for himself, so that sweets must be interdicted. Unless we can control the diet, the management of these patients is difficult. It is valuable to have attention called to it, so that a sentiment may be excited against this over-indulgence which we find among the richer classes. Among people of more moderate means such troubles are not so common. Until these cases can be put upon a proper regimen, which it is easy to suggest but difficult to carry out, I do not think that medicine or local treatment will be of much avail.

Dr. F. I. KNIGHT, of Boston: This class of cases is familiar to most of us now. It is only recently that the peculiar irritability under the topical measures struck me very forcibly. Within the past year I have noted it particularly in a number of cases. The gentlemen may remember that a number of years ago there appeared an article in the "Popular Science Monthly" by, I think, a layman, in which catarrh was attrib-

uted to the disproportion between the amount of food ingested and the amount of exercise taken. Although the views were exaggerated, there was a good deal of truth in the article. I can say that where I have been able to make patients carry out the proper treatment I have usually been rewarded by very good results. The treatment has consisted in cutting down the diet at once, the cutting off of the excess of sugars and starch, the almost complete elimination of pastry and potatoes, and, in addition, the free use of alkaline drinks. In cases where the urine has shown a good deal of oxalate of lime, particularly where there is irritative cough, I have several times seen extraordinary results from the administration of hydrochloric acid. I have in several cases seen a cough which had persisted for several months cease in a few days under this treatment. The exercise is a part of the treatment which it is hard to induce the patient to carry out; unless you lay down some definite means, unless you insist upon a man buying a horse or a young man going to the gymnasium, it will not be done. In most large cities there are men who will take charge of such discipline. We have now a Swedish gentleman of good education who is doing a great service for some of our patients in this way.

Dr. W. H. DALY, of Pittsburgh: This question has been brought to our notice before by Dr. Allen and, I believe, by Dr. Ingalls, and to-day, in a very instructive manner, by Dr. Hinkel. It makes one rather proud of being a laryngologist to see these practical and substantial lines of thought branching out in various directions. It certainly promises well for the future of medicine, and especially for laryngology. I confess that my attention was first called to it by Dr. Allen's paper, and I have since read his paper once or twice, and I must further confess that I am very much at sea as to any definite belief as to the pathology of these cases, whether they are primarily a digestive disorder, or a liver disorder, or whatever else it may be.

In this connection I wish to say a word with reference to Murchison, and there never lived a higher authority on questions connected with disease of the liver and some forms of lithæmia and gout; but a man who wrote so much and taught so much could not avoid making some errors. Of these I do not intend to speak. It is not safe to follow Murchison through all the mazes of his theories. I say this with all due respect, for I enjoyed a personal acquaintance with Murchison during his life, and feel proud to have known him.

As we are, in a practical way, more interested in dealing with these patients in a curative way than any other, it may be well for me to refer to a simple method which I have resorted to with probably more satisfaction than any other. In my experience with salicylate of sodium I have never been able to get patients outside of hospitals to take it longer than twenty-four hours at a time within the past year in such cases as have been referred to by Dr. Allen and Dr. Hinkel. I have ordered equal parts of salicylic acid and bicarbonate of sodium to be mixed, and of this the patient takes from a half to a whole teaspoonful, in a small, strong lemonade, half an hour before each meal. Patients will take the drug in that way longer than in any other. I do not continue it more than four or five days at the furthest. Good results are obtained in a fair proportion of cases very quickly.

Dr. F. W. HINKEL: I am glad to receive the corroboration of the gentlemen present. I knew that they had all seen this condition in some form. I wanted particularly to point out the fact that there are some cases in which the digestive disturbance is not due to great excesses on the part of the patient, and also that there are a few symptoms—such as a patchy appearance of the mucous membrane—which I have seen associated with the general condition frequently enough to think that it is a local

sign of some significance, and might lead one to suspect lithæmic complications where the appearance of the patient might not suggest it. As Dr. Glasgow has said, there is frequently gastric derangement. Frequently there is a chronic gastric catarrh, which must be relieved by the physician before the laryngologist can hope to relieve the condition in the upper air-passage. Whether this gastric condition is not due to the underlying constitutional condition is a question.

When we give bicarbonate of sodium and salicylate of sodium, we are really making use of remedies which will check the fermentative action which goes on in the intestinal tract, and prevent that acidity which I am perfectly sure frequently stands in a causative relation to the nerve storms which sweep over such individuals. In this way the local conditions are relieved by removing the source of irritation from the intestinal tract.

NEW YORK CLINICAL SOCIETY.

Meeting of May 23, 1889.

The President, Dr. L. BOLTON BANGS, in the Chair.

Diabetes of Tubercular Origin.—Dr. M. ALLEN STARR presented a specimen of peculiar interest. It was the medulla oblongata of a man whose only symptom of disorder had been diabetes. A miliary tubercle about one centimetre long was situated in the medullary fibers just below the point where an experimental puncture produced diabetes, in a tract figured in Tierce's book which was supposed to take a downward direction.

Solid Œdema of Traumatic Origin.—Dr. J. W. MURRAY presented a patient of whom he gave the following account: Thirteen months previously the man, a worker in an iron foundry, had had his arm drawn through a pair of iron rollers, up to the elbow, and the skin stripped up from the hand nearly to the shoulder. Afterward the skin about the elbow had sloughed away, and, two months after the accident, there had been swellings, running into abscesses, in the hands and arms, and from one of the palmar abscesses a piece of cartilage had been discharged. After this, new skin had grown in nearly as far up as the elbow. Owing to the congestion of the injured part, and especially to the destruction of the skin and soft parts (including the lymphatics) about the elbow, the hand and forearm were in a condition nearly equivalent to elephantiasis. The whole limb was very large and heavy, and entirely useless. Judging from the deformity, it was probable that some fracture of the bones also existed. There was very slight motion in the fingers. There was no anæsthesia; on the contrary, there was marked tenderness on pressure. Dark patches of pigmentation were to be seen in different parts of the forearm. There was great and constant pain in the limb, also neuralgias, a "pins-and-needles" sensation, and flushes of heat and cold. Cellulitis was common enough after a crushing injury, but in this case, instead of gradually passing away, the swelling or growth was slowly increasing. He was about to perform amputation at or just above the elbow.

Dr. J. W. WRIGHT said that we might suppose it a case where there had been a nerve lesion of some obscure sort which was followed by the formation of an enormous quantity of new connective tissue. The prognosis, so far as restoration of the injured limb to a healthy or useful condition was concerned, seemed to him unfavorable, and the only treatment to be amputation. The man's hands reminded him, in their swollen appearance, of the prepuce of a man he had once seen in the early stages of a very severe attack of gonorrhœa; this patient had had an unusually long foreskin, and the inflammation had caused a degree of œdema which had disfigured the penis most

effectually. The œdema in a few such cases failed to subside with the usual promptness, and continued on a few weeks, or months, or even years. Now, in the present case, we could also assume that the condition was one of solid œdema, due to the destruction of so many of the lymph-spaces and the non-absorption of the effused products of inflammation. When one cut into such tissue it was like cutting into a bowl of very thick jelly. An incision was followed by no outpouring of fluid. The material effused had enough reparative material combined with it to become practically organized and so to remain *in situ* indefinitely without further change. In several such cases where the prepuce was involved he had been obliged to make an extensive plastic circumcision, but had never seen any fluid escape. He thought that in the case of the patient now before the society the arm would be found to be in this same condition. He had never seen any treatment succeed in restoring tissue in which this change had taken place, and did not believe anything could act on it reparatively.

Dr. R. ABBE had seen one case where such an enlargement had taken place in the foot of a man suffering from necrosis of the tibia. He should think that probably a nerve-lesion existed, although he must admit that the causation here was very obscure. The condition was not one of true elephantiasis, evidently.

The PRESIDENT had met with accounts, in his readings, of a similar condition sometimes developed in the scrotum, which some writers considered due to an increased formation of cellular tissue. Sir James Paget called it a solid œdema due to a true lymphatic obstruction and engorgement, together with a formation of new tissue by cellular hyperplasia.

Dr. MURRAY said that his study of the case had convinced him that its essential features were not the result of a nerve lesion, but arose from the destruction of the lymphatics in and above a granulating surface (in this case at the elbow), and also from the general congestion. It was not unlike a suppurative cellulitis of the arm, especially one spreading upward from the hand to the forearm, only that the latter affection slowly subsided as the lymphatics gradually came into action. Here that provision was cut off.

A Cortical Motor Center for the Human Larynx.—Dr. D. B. DELAVAN presented the results of observations made by him in connection with an obscure case of cerebral disease, with specimens. (See vol. xlix, p. 673.)

Dr. STARR thought it an especially interesting feature in Dr. Delavan's investigation that it tended to disprove the theory of Krause that cortical lesions, and they only, produced paralysis of one vocal cord. Krause had made his affirmation as a result of experimentation. The speaker had thought it a cortical lesion in Dr. Delavan's case until the autopsy was made. In Sims's experiments, published in 1882, the conclusion had been reached that cortical lesions produced bilateral paralyzes, and that extirpation of the diseased area would not cure such paralyzes entirely. The lesion in Dr. Delavan's case must have had its seat in the medulla or in the nerve itself. He had a case in his clinic illustrating the same thing—a unilateral laryngeal paralysis, with a slight paralysis of the tongue. A difference of half an inch in the position of the lesion in Dr. Delavan's patient would have been accompanied by a corresponding paralysis of the tongue.

A Large Psoas Abscess.—Dr. B. F. CURTIS presented four photographs of a very large psoas abscess which he had opened the week previous. It was the largest he had ever met with. About six quarts of pus had been taken away from the contents of this tumor, and about two quarts remained in. The patient had had some hectic fever for a few days, but was at the time very comfortable.

The Surgical Treatment of Inveterate Tic Douloureux.

—Dr. R. ABBE read a paper with this title. (See p. 121.)

Dr. DELAVAN had met with one of the patients operated on by Dr. Carnochan (twenty years before), and had been assured that there had been no return of the old pain.

Dr. STARR said he had had two interesting cases of the same kind, but in neither had it been necessary to make the section at a point so deeply placed as in Dr. Abbe's cases. Dr. Hall had operated on one of these patients (an old lady) in 1885, after she had suffered intense agony in the infra-orbital branch of the fifth nerve for six years. The incision had been made parallel to the inferior orbital line, and, as the face contained many wrinkles, it had been possible to make the scar scarcely noticeable. An inch of the nerve had been excised. After three years there had been no return of the pain.

The other patient had been operated on by Dr. Hartley, the right inferior dental nerve being the one affected. A slight incision having been made, the lower jaw had been trephined over the site of the dental canal and half an inch of the nerve excised, after stretching it. There had been no pain in the nerve after the first twenty-four hours following the operation. Here were two cases in which, apparently, it had not been necessary to go so far in as Dr. Abbe had found desirable. It would be well if we found some means of determining at how deep a point the section needed to be made. This point might be somewhat elucidated by the injection of cocaine into the nerve at its point of exit from the bony canal. He had recently had two cases of *tic convulsif* in which an injection of cocaine had shown which branch of the nerve was involved. In both cases the excision of a portion of the nerve had resulted in a cure. If the injection of cocaine stopped the pain in a nerve, this showed, of course, that the lesion was peripheral. If not, then operation at that point would be a vain procedure.

Dr. WRIGHT remarked that he had met with a large number of instances in which tic douloureux had proved absolutely unmanageable by medical treatment. In attempting, before operating, to differentiate as regarded what branch of the nerve was involved, it was very important to get a careful statement from the patient as to the seat of his pain. He had seen several cases where the nerve had been taken out as far up toward the brain as it was possible to reach without any result. This indicated that the nerve was affected throughout its length. But, where the use of cocaine would tell us that some single branch of the nerve was affected, a portion of that branch could be removed and the more formidable operation not gone into. He had seen a number of cases where the partial operation had been without effect, and had done some of these operations himself. So he had come to look on the operation as one which was certainly successful if thoroughly done—*i. e.*, if Meckel's ganglion was taken out, as he had often had to do.

Dr. ABBE, in reply to a question from Dr. Emerson, said that he had found the nerve redder than was natural, and swollen, but could not say whether this had been due to the operation or not.

Masked Perityphlitis in a Child.—Dr. H. C. COE presented a perforated vermiform appendix and a faecal concretion which he had removed from the body of a child dying suddenly in whom no such lesion had been suspected until the autopsy. The whole history of the case had not furnished a significant symptom. The child had merely complained of constipation. There had been no pain. Vomiting had been slight; the temperature not above 102° F. The bowels had been moved freely, and the temperature had then subsided. Afterward, when looking bright and well and playing actively, the child had suddenly fallen back dead. At the autopsy he had found a perforation, an escaped faecal concretion, and a very foetid, purulent peritonitis. There

had been no tenderness over the abdomen, and yet the process must have been going on for forty-eight hours. Could such a condition be suspected with such slight symptoms?

Book Notices.

A Treatise on Surgery, its Principles and Practice. By T. HOLMES, M. A. Cantab., Consulting Surgeon to St. George's Hospital, etc. With Four Hundred and Twenty-eight Illustrations. Fifth Edition. Edited by T. PICKERING PICK, Surgeon to and Lecturer on Surgery at St. George's Hospital, etc. Philadelphia: Lea Brothers & Co., 1889. Pp. xxiii-33 to 1008. [Price, \$6.]

This work is a compendium of the author's more elaborate "System of Surgery," and appears to have been pretty thoroughly revised and brought up to the period of its issue. Though the surgery of the eye has been omitted in this edition, for reasons which seem sufficient to Mr. Holmes, the book is not reduced in size, the added matter being required in dealing with the recent advancement in operative procedures. Though excellently written and carefully compiled, the book suffers somewhat from paucity in detail. This is a shortcoming of which Mr. Holmes is fully conscious, as he touched upon the fact in his preface to the first edition. Turning to the subject of abdominal surgery, with the latest and safest methods and details of which it is the desire of every ambitious surgeon to acquaint himself, one is disappointed to find that this volume has been issued before the author had the opportunity of introducing a description of Senn's decalcified-bone plates or the ingenious "catgut-ring" modification thereof by Abbe. Devices which it is already maintained lower the mortality rate after intestinal resection from 87 to 8 per cent. must surely soon find place in surgical text-books. In the work under notice the subject is thus summarily dismissed: "Little success has as yet attended the operation of resection of a portion of the alimentary canal, but there seems no reason to doubt that, with more improved methods of operating, a great success may attend it in the future, and that in certain cases the justifiability of such operations is unquestionable." Then, again, one must take issue with the deductions of the author that amputation of limbs for extensive joint disease offers better prospects than excision. Cases, such as recently reported in this country by Dr. Wyeth and others, of resections under strict aseptic and antiseptic precautions and the use of steel drills, surely negative such conclusions. The book is profusely and creditably illustrated.

Diseases of Women: A Manual of Non-surgical Gynæcology designed especially for the Use of Students and General Practitioners. By E. H. DAVENPORT, A. B., M. D., Assistant in Gynæcology, Harvard Medical School, etc. With Numerous Illustrations. Philadelphia: Lea Brothers & Co., 1889. Pp. xiv-25 to 317. [Price, \$1.50.]

THE absence of practical details and minor points of gynæcological manipulations in the standard text-books has induced the author to offer this work as a means by which the deficiency may be supplied. The methods of examination, the diagnostic significance of signs and symptoms, and the mode of treatment of the more common forms of pelvic disease, as well as the general principles on which the gynæcological art is based, are treated of in a clear, detailed, practical fashion, supplying to the tyro what experts have learned from experience. The author has succeeded as well as could be expected under the cir-

cumstances, if not better, but in a few instances he has been a little injudicious in recommending certain semi-operative procedures, such as digital exploration of the bladder through the urethra and dilatation of the cervical canal.

The chapter on pessaries should do much to disabuse the mind of the general practitioner of the belief that these unappreciated instruments are delusive snares in hard rubber, for it certainly explains the method of employing them in a very clear manner, and in one which should be well understood.

The chief criticism which might be made on the general character of the book is that, in portions, it savors of the style of literature now so rife in the land. We refer to the "vest-pocket" treatises and "compendiums" which are supposed to contain all the "essentials" of a department of medical science, and which are dear to the student's heart. When applied to such a department as that of gynæcology, this would be analogous to including stenography in the curriculum of a kindergarten, and fitting pupils for reporting speeches before they had learned how to write. No such idea could have possessed the author's mind, but a few isolated parts of the work do suggest the existence of such a vicious tendency. This is not, fortunately, a prominent feature, nor is it even apparent except when the contents are compared with the plan of the work. In other respects the author has done well.

Exploration of the Chest in Health and Disease. By STEPHEN SMITH BURT, M. D., Professor of Clinical Medicine and Physical Diagnosis in the New York Post-graduate Medical School and Hospital, etc. New York: D. Appleton & Co., 1889. Pp. xiii-7 to 206. [Price, \$1.50.]

THE name alone of the author of this compact little volume will commend it to any who are looking for a lucid statement of the principles upon which the physical exploration of the chest in health and disease is based, or for practical directions and hints in regard to the applications of the art in clinical medicine. The style is graphic, sustained, and forcible. Facts which present a natural contrast are constantly set in apposition to each other with that skill which only long training as a teacher gives. The author's efforts to convey exact ideas are well supplemented by the exquisite paper, printing, and illustrations, which furnish a continuous satisfaction to the eye.

Lectures on Massage and Electricity in the Treatment of Disease (Masso-electro-therapeutics). By THOMAS STRETCH DOWSE, M. D., Fellow of the College of Physicians of Edinburgh, etc. Bristol: John Wright & Co., 1889. Pp. xix-379.

INTRODUCING his subject, the author states that he has endeavored to deal with it in a spirit of scientific research, claiming no special merit for originality or the working of any "wonderful cures." Twelve lectures are devoted to teaching his methods and to the therapeutical application of massage to the innumerable diseases for which it is "an infallible cure," the allegation being vaunted in a spirit strikingly at variance with the modest terms of the preface.

Further comparative analysis demonstrates equally glaring incompatibilities, as, for instance, the following statements: "Massage is endowed with wonderful power, not only in arresting muscular, atrophic, and nerve degenerative changes, but it possesses an ability unique which no other agent does possess in restoring the nutrition and regenerating the growth of nerve and muscular fiber; and when I tell you that cases of progressive muscular atrophy which have been given up as hopeless have been cured by massage under my own daily observation, I am quite sure you will agree with me that it should receive a definite place as a therapeutic agent of the utmost value."

As an offset to this sweeping statement comes the following: "We can not hope to cure a sclerosis of the brain or cord; to think of it is utterly preposterous; but we can possibly arrest its spreading and start compensatory processes, and we can relieve nutritional and functional nerve troubles (usually peripheral), which frequently give patients much more distress, pain, and discomfort than the disease itself."

The subject of electricity is summarily dealt with in two chapters, made up largely of extracts from the writings of De Watteville and Apostoli, the writer believing the value of electricity as a therapeutical agent second to that of massage. Barring the apparent incongruities, the book as a whole will be found useful to those wishing to test the merits of massage. The drawings are well done, clear, and explanatory, and add greatly to the value of the work.

The Essentials of Physical Diagnosis of the Chest and Abdomen.

By J. WALLACE ANDERSON, M. D., Physician to the Royal Infirmary, Glasgow, and Lecturer on Medicine, Royal Infirmary Medical School, etc. New York: Macmillan & Co., 1889. Pp. viii-156. [Price, 75 cents.]

ANOTHER effort to elucidate the mysteries of physical diagnosis added to the numerous treatises already before us. Dr. Anderson says in his preface, however, that he has found great difficulty in selecting for his junior students a simple, concise, and suitable text-book on the subject, and hence he was constrained to become the author of this work. While no exception can be taken to the little book, which is fairly written and accurate so far as it goes, still one is impressed with the idea that Dr. Anderson's junior students might have been supplied with books perhaps even better suited to their needs. The treatise is not illustrated. Now the junior student delights to revel in pictures of lungs, heart valves, and so on, though these may be for the most part but sorry misrepresentations.

Hand-book of Materia Medica, Pharmacy, and Therapeutics.

Compiled for the Use of Students preparing for Examination. By CUTBERT BOWEN, M. D., B. A., etc. Philadelphia: F. A. Davis, 1888. Pp. vi-366. [Price, \$1.40.]

THIS little work fairly fulfills the object of its author. It contains a large amount of well-arranged and condensed information, and only that which the student or young practitioner will actually need. Being written entirely in the form of question and answer, it is particularly well adapted for those students who prepare for examination without a quiz-master. Many excellent prescriptions are incorporated.

GENERAL LITERARY NOTES.

AMONG recent foreign publications we note the following:

F. ALCAN, Paris.—A. Boiesco, "De l'érythème noueux palustre." — F. Terrier, "Remarques cliniques sur une sixième série de 25 ovariectomies." — Chobant, "De la tarsectomie antérieure, totale et partielle, dans les cas pathologiques." (3fr. 50.) — O. Dintrieff, "Le képhir, boisson médicinale du lait de vache." — E. Thévenin and H. de Varigny, "Dictionnaire abrégé des sciences physiques et naturelles." — J. Bœkel, "De la résection du genou, étude basée sur 64 observations personnelles." (4fr.)

ASSELIN & HOUZEAU.—D. Labbé, "De l'ozone. Aperçu physiologique et thérapeutique." (1fr. 50.) — P. Bloeq and H. Gillet, "Des cirrhoses graisseuses considérées comme hépaties infectieuses."

O. BERTHIER, Paris.—P. Dubois, "L'art dentaire aux États-Unis. Rapport à l'Association générale des dentistes de France." — Doit-Lambon, "Affections chroniques des voies respiratoires traitées par les eaux sulfureuses et particulièrement aux Thermes de Luchon." (4fr.) — Moneorvo, "Sur les troubles dyspeptiques dans l'enfance et sur leur diagnostic clinique."

J. B. BAILLIÈRE & FILS, Paris.—M. Conan, "Traité d'homo-homœopathie. Médicaments réunis par séries et groupes physiologiques." (10fr.) — L. Edinger, "Anatomie des centres nerveux." (8fr.) — A. Imbert, "Les anomalies de la vision, avec une introduction par E. Javal." (3fr. 50.) — A. Kelsch and P. L. Kiener, "Traité des maladies des pays chauds.—Région pré-tropicale." (24fr.) — V. Nivet, "Rapport sur l'épidémie de fièvre typhoïde de Clermont-Ferrand en 1886." (2fr. 50.) — J. Arnould, "Nouveaux éléments d'hygiène." 2d ed. (20fr.) — R. Blanchard, "Traité de zoologie médicale." 3d part. — E. R. Coni, "Progrès de l'hygiène dans la République Argentine." — C. Vieillard, "Étude chimique de la goutte et son traitement par le vin Duflot." — Mattéi, "La médecine simplifiée ou l'homœopathie complexe." (6fr.)

BUREAU DU PROGRÈS MÉDICAL, Paris.—B. A. Edwards, "De l'hémiplegie dans quelques affections nerveuses (ataxie locomotrice progressive, sclérose en plaques, hystérie, paralysie agitante)." (4fr.) — Lejars, "L'enseignement de la chirurgie et de l'anatomie dans les universités allemandes." (2fr.) — Georges Guinon, "Les agents provocateurs de l'hystérie." — P. Cornet, "Traitement de l'épilepsie." (2fr.) — Babinski, "Grand et petit hypnotisme." — Sevestre, "Études de clinique infantile." (2fr.) — L. Urekham, "Lettres d'Angleterre." (50c.) — U. Popoff, "Recherches sur la structure des cordons postérieurs de la moelle épinière de l'homme." (50c.) — H. Napias, "Bibliothèque d'assistance publique." (1fr.) — Jonnesco, "Anatomie topographique du duodénum et hernies duodénales." (2fr.)

H. COCCOZ, Paris.—Malibrant, "L'atomie intestinale et ses complications." (5fr.) — Paul Benard, "Quelques particularités relatives à la nouvelle installation balnéothérapeutique de Saint-Christan." (1fr.)

O. DOIN, Paris.—A. Auvard, "Traitement de l'éclampsie puerpérale." (3fr.) — G. Chopin, "Élimination de l'acide salicylique suivant les divers états des reins, ses transformations dans l'économie, son action sur les principaux éléments de l'urine." (2fr.) — A. Dufour, "Contribution à l'étude des auto-intoxications, des manifestations morbides du surmenage physique." (3fr.) — Dujardin-Beaumetz, "Annuaire de thérapeutique." (2fr.) — M. Legrain, "Hérédité et alcoolisme. Étude psychologique et clinique sur les dégénérés buveurs et les familles d'ivrognes." (7fr.) — M. Natier, "Fièvre des foies (pathogénie et traitement)." (3fr.) — M. Natier, "Contribution à l'étude du mutisme hystérique." (1fr. 75.) — F. Raymond, "L'étude des maladies du système nerveux en Russie." (3fr.) — M. Rivière, "Pathogénie et traitement de l'auto-intoxication éclamptique." (5fr.) — Rodrigues dos Santos, "De l'influence de l'impaludisme sur les femmes enceintes." (2fr. 50.) — F. Viault and F. Jolyet, "Traité élémentaire de physiologie humaine." (16fr.) — Deléang, "Du traitement des fibrômes utérins par la méthode d'Apostoli." (1fr.) — La Torre, "Fibrômes utérins, leur traitement par l'électrolyse (méthode Apostoli) et leur élimination fréquente sous-muqueuse par l'action de l'électricité." (1fr. 50.) — Dunn, "Nouveau traitement chirurgical des maladies inflammatoires des reins et des uretères chez la femme." (3fr. 50.) — Garel, "Électricité médicale, éclairage et galvanocautique." (1fr. 50.) — P. Budin, "Leçons de clinique obstétricale." — P. Tissé, "L'hygiène du velocipédiste." — E. Berger, "Anatomie normale et pathologique de l'œil."

IMPRIMERIE VE. CADORET, Bordeaux.—E. Faivre, "Contribution à l'étude des injections hypodermiques et parenchymateuses d'acide plénique."

H. LAURUNS, Paris.—P. Degnat, "Histoire de la médecine et des médecins à travers les âges."

LECROSNIER & BABÉ, Paris.—P. Lacombe, "La famille dans la société romaine." (Vol. VII of the "Bibliothèque anthropologique.") (7fr.) — Ch. Letourneau, "L'évolution de la propriété." (Vol. VIII of the "Bibliothèque anthropologique.") (8fr.) — E. Goubert, "Nouveau traitement de l'épilepsie, sa guérison possible." (75c.) — Koenig, "Traité de pathologie chirurgicale spéciale." Transl. by J. R. Comte. Vol. II, 1st fascie. (7fr.) — A. Hovelacque, "Les nègres de l'Afrique sus-équatoriale." (8fr.) — G. Sée, "Traité des maladies du cœur (étiologie et clinique)." (12fr.) — Benedeekt, "Manuel technique et pratique d'anthropométrie cranio-céphalique." Transl. by Dr. Keraval. (5fr.) — Remy, "Mamel des travaux pratiques d'histologie." (7fr.) — Garrod, "L'acide urique, sa physiologie et

ses rapports avec les calculs rénaux et la gravelle." Transl. by H. Cazalis. (2fr.)

G. MASSON, Paris.—G. Gradenigo, "Contribution à l'anatomie pathologique et à la pathogénie de l'otite sclérose." — "Association française pour l'avancement des sciences." 17th session. Oran, 1888. 1st part: Official documents. *Procès verbaux*. 2d part: Notes and memoirs. — Bertin-Sans, "Hygiène." — Garcin, "Étude sur la valeur du traitement de la tuberculose pulmonaire par les inhalations d'acide fluorhydrique." — Ch. Monod and O. Terrillon, "Traité des maladies du testicule et de ses annexes." — Roussy, "Les alcaloïdes animaux devant la médecine légale." — Roussy, "Ptomaines et leucomaines."

C. REINWALD, Paris.—Daviller, "L'alcool et l'alcoolisme." — A. Dubarry, "Contribution à l'étude de la vie des microbes pathogènes dans l'eau." — V. Gilbert, "Étude sur les diverses médications de la tuberculose pulmonaire et en particulier sur le traitement par les inhalations d'acide fluorhydrique." — E. Bitet and H. Lamarque, "Un cas d'hystérotraumatisme chez l'homme."

G. STEINHEIL, Paris.—Th. Tuffier, "Études expérimentales sur la chirurgie du rein (néphrectomie, néphrorrhaphie, nephrotomie, uréthrotomie)."

H. LE SOUDIER, Paris.—A. Lévy, "Méthode pratique de langue allemande," 2d part.

SYLBERBERG, Khar'koff.—P. J. Kowalewsky, "Ivrognerie, ses causes et son traitement." Translated by Woldemar de Holstein.

G. FISCHER, Jena.—L. Edinger, "Vergleichend-entwicklungsgeschichtliche und anatomische Studien im Bereiche des Centralnervensystems. Ueber die Fortsetzung der unteren Rückenmarkswurzeln zum Gehirn."

HYGIEN. INSTITUT, Berlin.—G. Cornet, "Die Verbreitung der Tuberkelbacillen ausserhalb des Körpers." — G. Cornet, "Ueber das Verhalten der Tuberkelbacillen im thierischen Organismus unter dem Einfluss entwickelungshemmender Stoffe."

G. CIVELLI, Milan.—"Atti della terza riunione d'igienisti italiani."

ENRICO DETKEN, Naples.—Cantieri, "Su ne easi di ulcera cronica simplice e sul carcinoma dello stomaco."

TIPOGRAFIA COOPERATIVA, Florence.—G. Gradenigo, "Il valore pratico dell' esame elettrico del nervo acustico."

VALLARDI, Padua.—G. Gradenigo, "Le affezioni del nervo acustico nel riguardo clinico."

VINCENZI & NIPOTI, Modena.—C. Bergonzini, "Sulla ricerca dei bacilli tubercolari negli sputi."

IMPRENTA DE DOMENECH, Valencia.—Colvée y Rovora and Peset Corvera, "Experimentos sobre el alcoholismo agudo."

IMPRENTA DE EL ÑUBLE, Chillan.—R. García, "Epidemia de cólera en Chillan."

Reports on the Progress of Medicine.

GYNECOLOGY.

By ANDREW F. CURRIER, M. D.

Ligation of the Uterus per Vaginam, and its Indication in Cases of Retroflexion and Prolapsus of the Organ.—Schücking's paper ("Anales de Obst., Gin. y Ped.," March, 1889) was read at the sixty-first Congress of German Naturalists and Physicians. The author has been contemplating for years a secure and safe method of reducing a retroflexed or prolapsed uterus, and one which should be permanent in its results. One plan which suggested itself consisted in passing a ligature from the cavity of the uterus to the abdominal wall, but this involved the danger of wounding the intestine and also the possibility of infection. Besides, if adhesion of the uterus to the abdominal wall were secured, the line of adhesion would probably be insecure by such a method. Hence, it seemed evident that the desired end could be attained only by a suture which should fix the fundus uteri to the abdominal wall at its top and sides, the peritoneal covering of the uterus being fixed to the vesico-uterine fold and to the peritonæum contiguous

to this fold. This would fix the uterus in a position of acute ante-flexion. As to the danger attending the perforation of the fundus uteri through the antero-lateral portion of the vagina, the author asserted that there was no danger if all the genital tract were thoroughly disinfected and a proper needle were used. Perforation of the uterus has been done without bad results too frequently, and with instruments also which were not aseptic, to fear much from such a procedure. The bladder need not be wounded, as it can be pushed aside with a sound while the suture is being passed. In three cases in which the bladder was perforated by the author no harm followed. The intestines will not be injured, as they do not lie in the area traversed by the needle. The operation has not been tried in cases in which there were firm adhesions. The needle was made as small as possible consistently with strength—small enough to pass into the virgin uterus with the sheath which guarded it, and properly curved to pass from the fundus of the uterus to the abdominal wall.

Twelve patients with retroflexion have been operated upon, eight of them without using an anæsthetic; also three cases of prolapse have been operated upon without an anæsthetic. The operation is performed with the patient in the dorsal posture, and, after the uterus has been replaced with the sound, the ligature of carbolized silk is carefully passed, the uterus being drawn downward as near the vulva as possible before its cavity is entered. The ends of the ligature are tied with a surgeon's knot (external to the body?), and then an iodoform tampon is introduced into the bladder and another into the vagina. The ligature may be cut after six to twelve days, an iodoform tampon being again introduced into the vagina. The author says there was no rise of temperature in any of his cases, but that there were slight pains in some of them. In the three cases of prolapsus the ligature was allowed to remain three weeks. In all the author's—except the first, in which the ligature parted too soon—the retroflexion or the prolapse was cured, and not only that, but the symptoms depending thereupon were also cured.

Affections of the Fallopian Tubes and Ovaries in their Clinical and Anatomico-pathological Aspects.—Mignon (*ibid.*, April, 1889) gives the following conclusions as the results of his clinical and histological investigations:

1. The anatomico-pathological forms do not exactly correspond to the different clinical ones in connection with diseases of the tubes.

2. The diagnosis of tubal diseases does not offer very great difficulties. Should the tumor not present the characteristic form of the distended tube, and the bimanual exploration fail to give clear results, the diagnosis may be made from the history and the course of the disease.

3. The variation in the volume of the tumor is a matter of great importance in making a diagnosis, this condition being dependent upon the processes of ovulation and menstruation. This variability is especially characteristic of small tubo-ovarian tumors, and will assist in distinguishing them from neoplasms.

4. The tubal disease tends to propagate itself to the neighboring organs and tissues.

5. This tendency of extension of the tubal disease to the neighboring organs is very variable. In some cases the process is limited to the tubes, causing great changes, in which there may be large collections of serum or pus in the distended tubes, but no false membranes or adhesions to neighboring organs. On the other hand, there may be false membranes in abundance, agglutinating the uterine annexa together, while the organs themselves may not be much altered, or may show only secondary alterations.

6. The tubes may become diseased in different ways, either by extension from the mucous membrane of the uterus or, secondarily, in consequence of inflammatory processes in their vicinity transmitted through the lymphatics.

7. Tubal disease is usually bilateral, though it may differ in degree on the two sides.

8. The anatomo-pathological changes may be varied, depending upon the coincidence of many conditions—such as the intensity of the process, its duration, the cause, the point of departure; again, the changes may be primary or secondary, as in cases in which there is muscular hyperplasia, or atrophy of the walls in consequence of the pressure of the contained fluid.

9. The phenomena of atrophy and hypertrophy are those which ordinarily attend inflammation with such consequences. There are changes in the vessels, the emigration of white and red corpuscles, swelling of the tissues, and the new formation of connective tissue.

10. Effusions of blood sometimes take place into the tubal walls, but the presence of blood in the cavity of the tube does not necessarily indicate the existence of hæmorrhagic salpingitis.

11. In many cases the tube is divided into cavities of varying capacity, lined with cylindrical epithelium. Some of these cavities may communicate with the general lumen of the tube, while others are separated from it. These cavities are sometimes found in tubes which are enlarged, and at others they are in tubes which have walls of normal dimensions.

12. The ovaries almost always participate in tubal disease, especially in cases in which there is cystic degeneration, cicatricial contraction, or atrophy of the ovary with disappearance of the glandular tissue, while they are rarely implicated in cases of abscess, follicular degeneration of the tubes, etc.

13. Atrophy of the ovaries is found in some cases in which the uterine annexa are imbedded in solid and extensive false membranes.

14. Should disease of the uterine annexa persist for a long time, it will excite certain reflex phenomena of the nervous system, the gastrointestinal tube, etc.

Massage in the Treatment of Pelvic Disease.—Boriakovsky read a paper (*ibid.*) before the Third Congress of Russian Physicians, the conclusions being as follows:

A. In prolapse of the uterus:

1. Massage applied after Brandt's method will effect a cure in some cases.

2. It can not be decided whether such a cure will be a permanent one. In some cases recurrences have been reported.

3. The method of treatment is tiresome both for the physician and the patient, and may influence the nervous system of the patient unfavorably.

4. It is doubtful whether it will be possible for this method to supplant operative treatment for prolapse of the uterus.

B. Inflammatory exudates in the pelvic cellular tissue:

1. The results of the treatment of parametric exudates by massage are more favorable than those which have attended similar treatment of prolapse of the uterus.

2. The use of massage in the treatment of chronic exudates in the pelvic cellular tissue implies a shorter course of treatment than the means which have heretofore been in vogue.

C. Intraperitoneal exudates: With reference to intraperitoneal exudates, circumscribed hæmorrhages, flexions and versions of the uterus, inflammations of the uterine parenchyma and of the ovaries, the paper reports no reliable cases. For retro-uterine hæmatoma massage is not indicated, as it might encourage suppuration. In general, this subject requires more extensive investigation, and, as its irrational use would result in harm, it should be studied in hospitals and clinics under the direction of one who is thoroughly acquainted with it. The following are conclusions deduced from other papers on the same subject as the foregoing, which were read at the same convention:

1. Massage is undoubtedly a powerful method for the treatment of disease of the female pelvic organs.

2. The indications and contra-indications for its use are far from being definitely settled.

3. The method can only be studied experimentally.

4. Massage irritates the nervous system only in exceptional cases of hyperæsthesia of the sexual organs.

5. It is not very probable that it encourages sexual excitability.

6. It is not important that the person using this method should be of the opposite sex as regards the patient.

7. Electricity has a much more exciting effect upon the nervous system than massage.

Salpingo-oophoritis and its Relations to Abdominal Exudate.—Terrillon ("Jour. de méd.," March 3, 1889) remarks that the history of circumuterine inflammations has made a great advance, and many points have been elucidated since surgeons began to make bold investigations concerning the ovaries and tubes by means of laparotomy. These opera-

tions have demonstrated that the tube and the ovary were the origin of those affections known under the name of parametritis. They have also supported the statement of Aran and Bernutz, that pelvic peritonitis, which is secondary to tubal and ovarian disease, is a late phenomenon of the disease, but the most important one from a clinical standpoint. From these discoveries it has resulted that the so-called phlegmon of the broad ligament is no longer recognized, or at least that it is of very rare occurrence. It is therefore reasonable that the theory concerning phlegmon of the broad ligament, and also that concerning adeno-phlegmon of the same region, should be abandoned as causes of error in the interpretation of certain symptoms. In pelvic or circumuterine inflammations one frequently finds an indurated exudate near the pubic arch and the region of the broad ligament, which is an important diagnostic and prognostic sign, and which extends to a greater or less distance from the umbilicus. This exudate indicates the extension of an inflammation deeply situated behind the pubes, and frequently starting from the vicinity of the uterus. It is the ordinary expression of the extension of the primary disease, but it is sometimes the herald of fluctuation which is the guide to the surgeon for the opening of a deeply seated abscess. This exudate has usually been misunderstood as to its origin, mechanism, and significance. Writers have always considered it an extension of a phlegmonous inflammation beginning at the base of the broad ligament, developing between its layers and reaching its upper portion. From the latter point it was supposed to infiltrate the tissue between the peritonæum and the pelvis, stripping up the peritonæum and forming a mass between the Fallopian tube and the abdominal wall. Guérin believed it was the result of an adenitis situated at the level of the obturator foramen; that the peri-adenitis developed around this point could raise the peritonæum and form a mass behind the abdominal wall, and that the peritonæum became thickened to prevent the effusion of pus into the abdominal cavity. Laparotomies upon living subjects have demonstrated the error of these views, and have given the anatomical proof of the cause of the abdominal exudate and of its practical importance. In cases in which this exudate exists, laparotomies have shown that the tubes and ovaries do not always occupy the same position in the pelvis, and that they may even be found at a great distance from their normal situation. Most frequently they are retroposed in the *cul-de-sac* of Douglas and massed at the sides of the uterus, but sometimes they are fixed by firm adhesions behind the symphysis pubis at their normal level. They may also be displaced to the level of the border of the superior strait, or even to a higher level, coming in immediate contact with the abdominal wall. In the latter position the tubes and ovaries may be firmly adherent and be inaccessible by immediate palpation. If they become much enlarged and their connection with the abdominal wall is extensive, an examination of the abdominal wall gives one the impression of an exudate. The tumor may become as large as the hand or larger if the inflammation becomes diffused and forms thick masses of false membrane. This effect is the more extensive and perceptible if the omentum becomes thickened, inflamed, and adherent, and is combined with the thick false membranes, thus adding to the thickness of the supposed abdominal exudate. Five cases are narrated in which laparotomy was performed, and the foregoing statements were verified. The author believes, therefore, that primary subperitoneal phlegmasia is very rare, and that most of the peritoneal inflammations originate from the tubes and ovaries.

The Relations of General Paralysis in Women to Certain Disorders of Menstruation.—Petit ("Gaz. méd.," Feb. 23, 1889) says that writers are not in accord concerning the condition of menstruation in women suffering from general paralysis. Some believe that this function is not deranged; others, among whom are the Germans and Italians, believe that the cessation of the menses is a frequent cause of general paralysis which would thus be essentially a disease of the menopause. The author thinks that menstrual troubles observed in paralytic women, instead of being always the cause of the cerebral disease, may, on the contrary, be the direct or the sympathetic consequence. Petit's investigations confirm this view. In fifty-nine paralyzed women he has observed in fifty-two of them disturbed menstruation, and in seven normal menstruation. In all cases the menstrual troubles were subsequent to the beginning of the general paralysis. In sixty-four cases of insan-

ity of different varieties he has only found disordered menstruation nine times, while it was normal in the other fifty-five. The most important of his conclusions are the following:

1. The development of general paralysis in women often leads to disorders of menstruation.

2. These disorders are characterized at times by sudden and definite arrest of the menses, at other times by marked irregularity in the menstrual epochs, though the function may have been previously performed with the greatest regularity.

3. When in the course of general paralysis in women there is a remission, the effect of this remission seems to be to restore the regularity of the catamenial function.

4. Patients who during an attack of diffuse meningo-encephalitis have developed no menstrual disorder, seem to resist such troubles longer than those who have suffered suppression or irregularity of the function.

Uncontrollable Vomiting during Pregnancy.—Quevedo ("Prog. Ginecol. y Ped.," Dec. 10, 1888) reports two cases in which this symptom was controlled by dilatation of the cervical canal after all other means had failed. The following conclusions are deduced:

1. In the present state of our knowledge, treatment by medicines is important to overcome the persistent vomiting of pregnancy.

2. The method of Copeman, which consists in the dilatation of the cervical canal by the finger, has given results which are rapidly attained, are harmless, and are easy of accomplishment.

3. Sponge may be used instead of the finger without fear of producing new complications, supposing always that the sponge is known to be free from septic elements.

4. Dilatation of the cervical canal should be performed as a last resort. If it fails in accomplishing the desired end, a miscarriage should be produced.

Curetting the Uterus for Puerperal Septic Endometritis.—Charpentier (*ibid.*) says that the cause of puerperal infection is an extraneous septic element which multiplies within the uterus or vagina, penetrates the blood, and produces grave or even fatal accidents. The development of this micro-organism produces a septic endometritis. General treatment in such cases is useful, but should only be auxiliary to local treatment, which is most efficacious. Intra-uterine injections are frequently useful, but they sometimes fail in producing the desired end. At such a time there is no means so efficient as curetting. The patient should be placed in the obstetric position, the vagina irrigated, and the uterus drawn down. If the cervix is not dilated, dilatation should be rapidly performed, and the uterine cavity irrigated with an antiseptic fluid. An antiseptic curette should then be applied over the entire uterine mucous membrane, the scrapings removed, the irrigation repeated, and a cauterizing antiseptic applied to the curetted surface.

Utero-ovarian Gout.—Mabboux (*ibid.*, Dec. 25, 1888) says that gout may be located in the female genital apparatus during or after the existence of sexual activity. There may be inflammation of the vagina, uterus, or vulva of gouty origin. Gouty phenomena may accompany menstruation in the form of dysmenorrhœa, or may occur during the intervals of menstruation. Utero-ovarian gout is to be treated by the same means which are efficient in other varieties of the disease, whether articular or visceral—that is, with alkaline mineral waters. The concentrated bicarbonate of sodium waters are indicated for plethoric patients when the inflammatory condition is not exaggerated, but are not indicated for the anæmic. The cold calcium sulphate waters are indicated in almost all cases on account of their resolvent, sedative, and tonic properties. They may be used with advantage when the pain is acute.

Treatment of Retroflexion of the Uterus.—Skutsch (*ibid.*) admits that an instrument has not yet been made which is adapted to the successful treatment of all cases of retroflexion, and yet the reason why pessaries fail to do well in the practice of many is that the instrument is not properly molded for each particular case, or else that the uterus is not relieved of those conditions which prevent its restoration to proper position. In many cases it is doubtless overlooked that there are resisting peritoneal adhesions and extensive scars in the parametrium. In such cases good results can be obtained by gradual stretching and methodical massage of the adhesions and scars. In the author's practice, in cases in which there are peritoneal bands, good

results have been obtained by methodical attempts at bimanual reduction. In cases in which there are adhesions or considerable remnants of exudate in the parametrium, the bimanual method of massage advised by Brandt for treating chronic inflammation of the pelvic cellular tissue has achieved good results. This method will also accomplish the gradual stretching of cicatricial bands. Progress having been made by such means, the uterus can then be sustained by a pessary. Before such treatment is carried out it is presupposed that a clear and accurate diagnosis of the condition of the pelvis has been made, bimanual exploration having been practiced. A long anterior vaginal wall is necessary in order that these manipulations may be successfully carried out, and this condition may be obtained by means of transverse incisions if the natural conditions are not satisfactory. With regard to operative treatment, the author feels that laparotomy is the only means by which certain results can be assured.

Vaginal Hysterorrhaphy.—Candela (*ibid.*, Jan. 10, 1889) describes an operation consisting in suturing the fundus of the uterus to the abdominal walls, through the vagina, without resorting to laparotomy. The operation has been performed by the author only upon the cadaver, but no great difficulty attended it. The three considerations concerning the operation are the preliminary precautions, the operation itself, and the subsequent attention. Under the first consideration is the treatment of those conditions which have arisen from prolapsus or retroversion, including endometritis and parenchymatous or perimetritic congestions. Such treatment will include rest, the horizontal position, hot vaginal douches, intra-uterine irrigation, intra-uterine applications and curetting, closure of fissures of the cervix, and amputation of the cervix when that is indicated. The author's operation should not be done until the uterus and its surroundings are in a condition of physiological integrity. A day or two before the operation the uterus should be thoroughly and antiseptically dilated. One of the important means for performing the operation is the needle, which is made after the author's plans. It consists of a cylindrical cannula of about the length and curve of a uterine sound and three to four millimetres in diameter. Within this cannula is a metallic spring, at the superior extremity of which is fixed a lance point with an eye in the middle. The spring and its needle are controlled by a button at the lower extremity of the cannula. Before the operation is performed the sound must be passed within the uterus, and it must be ascertained how nearly that organ can be brought into contact with the abdominal wall, which is to be depressed to a sufficient extent behind the pubes. If the tissues are all relaxed and the uterus is readily brought into contact with the abdominal wall, the operation may be done with the patient in the dorsal posture. Otherwise the genu-pectoral posture should be used as in operations for vesico-vaginal fistula. In the latter posture the intestines will be projected forward and upward, and will not be injured. The bladder and rectum must be empty and all the tissues in an antiseptic condition. The vagina is held open with retractors, the uterus is drawn down by means of a forceps in the lips of the os uteri, the cannula is introduced, the abdominal wall depressed, and the needle forced through the fundus and abdominal wall. It is then threaded with antiseptic silk, the needle is drawn back again through the cannula, and one end of the silk is secured at the abdominal wall, the other at the vulva. Another suture is then similarly passed, its location in the abdominal wall being three or four centimetres from the first. The bladder is avoided in these manipulations, its limits being ascertained by means of a sound within it. The sutures are tied together at each extremity, the abdominal wall being brought into contact with the fundus uteri, the vaginal ends being secured into a small plate of some suitable metal, after which the vagina is irrigated and packed with antiseptic gauze. Through the punctures in the abdominal wall two or three drops of tincture of iodine are injected in order to excite adhesive inflammation. After the operation the pain may be relieved by enemata of chloral or the suitable use of opium. Liquid food should be given for six days, and if the bowels are inclined to move, an enema of warm water should first be administered. If there is rectal or vesical tenesmus, a blister should be used over the hypogastrium. The sutures may be removed on the eighth to the tenth day. Vaginal douches should be given daily for ten days, after each of which the vagina should be retamped.

The author believes that this operation is applicable to most cases of prolapsus, and is superior to Alexander's operation for retroflexion. The dangers of laparotomy are avoided, and it is easy of performance. [This is essentially the same operation which has been advocated for several years by Schücking, and, so far as we know, has not been accorded a very favorable reception, either in Germany or elsewhere. Wisely, too, we think.]

Dilatation of the Cervix for Hæmorrhage from Myomas.—Kaltenbach (*ibid.*) remarks that Baker Brown and Nélaton observed independently and about the same time that thorough curetting of the cervix would diminish or prevent the hæmorrhage from interstitial myomata. Subsequently, and in the course of some ineffective attempts at enucleation, Baker Brown found that by scraping the circular muscular fibers of the os internum he was able to set up energetic contraction in the vicinity of the myoma, which became elongated and effectually tamponed the uterus. Others have observed favorable results in cases of submucous or interstitial myoma which extended to the os internum, or were prolonged into the cervical canal, by following Spiegelberg's recommendation of incising the capsule of the tumor, thus causing retraction of the tumor and of its vessels. Quite recently Kaltenbach has seen three cases of interstitial myoma in which the hæmorrhage did not cease until the cervix had been dilated. Stenosis of the cervix really favors continuance of the hæmorrhage, preventing free exit of the blood. In such cases there is pain during the first two or three days of the menstrual period, the blood accumulating in the cavity of the uterus, dilating it, and enlarging the area from which hæmorrhage proceeds. Dilatation of the canal by removing the mechanical obstacle relieves the unfavorable conditions.

Salpingitis and Castration.—Doléris ("Bull. et mém. de la soc. obst. et gyn. de Paris," January, 1889) says that salpingitis is not a recently discovered disease. It dates from Sponius, and is mentioned by Morgagni in his thirty-eighth letter. There are many cases in which the disease can be cured without ablation of the annexa, the author's experience demonstrating that the intratubal collections can be evacuated by extensive and permanent dilatation of the uterine cavity combined with curetting and drainage of that cavity. Certain well-settled points in connection with this subject must be remembered:

1. There is frequently distension of the internal segment of the tube and its uterine orifice when there is a chronic inflammatory condition of the tubal walls, combined with an encysted exudate in its middle portion and occlusion of the pavilion.

2. There may be a spontaneous evacuation of such collections, either at the time of the monthly period or as a result of some form of traumatism.

3. Diseased tubes are frequently alternately filled and emptied during months and years, a sudden and abundant flow marking each evacuation.

4. Cure has been obtained in many cases of supposed hæmatocele or circumuterine phlegmon which were, in fact, cases of hæmato-salpinx, hydrosalpinx, or pyosalpinx, by evacuation of the tumor *per vaginam*, by the aid of a kuife, trocar, thermo-cautery, or electrolysis.

5. Some cases of tubal disease have been cured by laparotomy, with incision into the tube, evacuation, and drainage, its walls being fixed to the abdominal wound.

After reviewing the different varieties of salpingitis, with their causation, the following conclusions are offered:

1. Active means of treatment should not be used in cases of acute recent salpingitis, but one should wait several months until the existence of a tubal tumor is fairly demonstrated.

2. The ablation of the annexa should only be proposed after the failure of more conservative treatment.

3. The artificial evacuation of the tumor will suffice for the cure of the greater number of the forms of tubal cyst.

4. A hastily made diagnosis of salpingitis, followed by the removal of the annexa after a very brief delay, is the negation of every sound principle of gynecology. The deliberate sacrifice of the essential organs of reproduction in a woman is an inexcusable fault.

The artificial dilatation of the uterus furnishes a good means for opening a passage for the secretions and assuring the permeability of the uterine and tubo-uterine canals, and this should be preceded by a

careful curetting. Nine cases were treated in this way with satisfactory results. The author's method consists:

1. In slow and progressive permanent dilatation of the uterine cavity. This may require several days, and may be accomplished with disinfected laminaria tents or with disinfected sponge. It may be desirable to use the two agents successively.

2. In careful curetting of every portion of the uterine cavity.

3. In drainage of the cavity, which is tamponed with iodoform gauze, moistened with glycerin.

Chronic Tubercular Endometritis.—Jouin (*ibid.*, March, 1889) says that this form of tuberculosis is more frequent than tuberculosis of the other mucous membranes of the genito-urinary apparatus. This may be due to the fact that the mucous membrane of the body of the uterus is soft, spongy, and rich in tubular glands, these conditions being favorable to the development of an anaerobic parasite. It has been observed and described to a certain extent by Louis, Aran, Bernutz and Goupil, and Verneuil, but the primary form has not been distinguished with sufficient clearness from the secondary by any one of these writers. Fernet described primary genital tuberculosis in the female, and spoke of its origin from sexual contact with a tuberculous man. Cornil and Chantemesse have also produced it artificially in rabbits by the injection of bacilli into the vagina. The author's studies included nine cases, in two of which the disease followed sexual intercourse with men suffering from genital tuberculosis. In two others the husbands were tuberculous, but had no apparent genital tuberculosis. In three others the cause could not be ascertained, and in the remaining two the cause was also uncertain. The diagnosis was verified once by the microscope and twice by the peritoneal inoculation of guinea-pigs. The disease is primarily a tubercular degeneration of the endometrium, but the uterine parenchyma and the perimetrium may also be involved. The predisposing causes may be heredity and bad general condition, also ruptures of the cervix and repeated attacks of inflammation. The determining causes are the bacilli and sputa upon soiled linen, or even upon various instruments, and especially sexual relations with a tuberculous husband. The fungosities upon the endometrium in these cases contain bacilli, with which guinea-pigs have been successfully inoculated. As to symptoms, the patient is the subject of leucorrhœa, pain in the abdomen, scanty micturition, constipation, and sterility. After a time the uterus becomes much enlarged and very sensitive to the touch, also more or less fixed. The cervix is red and perhaps ulcerated, and a sanious matter is discharged from the canal. The patients are much more prostrated than in simple endometritis, and have emaciation, fever, sweating, and arthritic troubles. Without proper care this condition will extend to the lungs, but it may be arrested by local treatment. The diagnosis is to be made by histological and microbiological examination, but also by observing certain clinical phenomena. The disease does not begin after labor nor after blennorrhœgia; the patient may not have had children, and the lungs may already present tubercular lesions. The primary form of the disease is not serious if properly cared for; the secondary form implies tubercular disease elsewhere.

In treating the disease the patient should first receive creasote. Curetting may be practiced, if thoroughly done, and the mucous membrane should then receive an application of creasote. Pencils of iodoform may also be introduced into the uterus, the organ having first been well dilated. This should be repeated every twelve days. Sexual intercourse should be abstained from as long as the disease continues. The hygienic and dietetic conditions must, of course, be as favorable as possible.

The Treatment of Uterine Fibromata.—Délétaing ("Concours méd.," Dec. 22, 1888) states that since 1884 he has treated ninety-seven cases of uterine fibroid tumor, all of the interstitial variety, with intra-uterine electrolysis. Fibro-cystic tumors and pedunculated fibroids were considered unsuitable for this method of treatment. The immediate effects of the treatment consisted of the following:

- A. A contraction of the uterus *en masse*, including the tumor, at the beginning of the treatment. This contraction was not constant.

- B. A congestion of all the organs which were intercalated within the circuit. The congestion was nearly constant, and usually continued several hours with accompanying colic pains.

- C. At times there was immediate disappearance of pre-existing

hæmorrhage. The subsequent effects usually were in the following order:

1. The hæmorrhage disappeared after recurring to a slight degree in some cases.

2. The pain and the functional troubles ameliorated, the phenomena not being dependent upon the size of the tumor, but rather upon the inflammatory zone which frequently surrounds such growths.

3. There was diminution in the size of the tumors, but two phases of this were distinguishable:

a. The peripheral inflammatory zone was absorbed, and the fibroma appeared smaller and less hard, but its retraction was at first only apparent. As a result of this absorption there was a segmentation into large masses, and a condition of mobility where there had previously been adhesion and immobility. At such a time the morbid phenomena were wont to disappear and the general condition to improve. In some cases there was a temporary aggravation of all the symptoms, which was due to congestion of the inflammatory zone.

b. The retraction of the fibroma was not constant. The influence of the electric current was far more pronounced upon metritis and the accompanying symptoms than upon the fibroma itself, but this does not diminish the value of the electrolysis. Notwithstanding the persistence of a tumor which is hard but well tolerated, women will frequently declare after such treatment that they are cured, and can not be convinced to the contrary.

In some of the author's cases an atresia of the cervical canal was produced by the electrical treatment, but this yielded readily to suitable dilatation. Currents of moderate intensity were used, one hundred milliampères being the usual strength, excepting in rebellious cases. The current was used five minutes at each *séance*, and the intervals between treatments were five or six days. All necessary antiseptic and other precautions were rigorously observed. In the 1,100 *séances* in which the author used this treatment there was but one accident, that being a slight phlegmasia. If currents of higher intensity had been used, it is possible that better results might have been obtained, and that they might have been obtained more rapidly.

Miscellany.

The Paris Universal Exhibition.—The "Lancet's" special correspondent writes to that journal as follows:

On Wednesday, August 7th, as announced in a previous letter, the members of the Congress were up betimes, so as to catch the special train destined to take them to Rheims. After a three hours' journey we reached the historic town. A number of brakes, vans, and carriages were waiting at the station, and we were conveyed some distance out of Rheims to view the sewage farm. This is quite a new institution, and only commenced to receive the sewage some four months ago. The town possesses 150 hectares, but can dispose, for irrigation purposes, of 500 hectares. This is amply sufficient, and when there is a storm, or when by some other cause there is more sewage than the soil under cultivation requires, the water may be thrown on some waste land. Thus the danger of flooding the ground is obviated and underground drains are not required. There is a pumping-station to send some of the water up to the higher grounds, which reach an altitude of twenty metres. Unfortunately, the chief utility of this sewage farm is to prevent the contamination of the river. It does not in any way solve the drainage problem. Rheims still drains into cesspools; the town has not water enough for water-closets, but when the water-supply has been increased then the existence of this sewage farm will enable the town to drain direct into its sewers. After duly investigating all these facts, the Congress was entertained at lunch at the Château des Marez, which belongs to the company that has undertaken the management of the sewage farm. The lunch was served in a magnificent avenue of trees. Of course, there were some excellent speeches, notably by the director of the company, the prefect of police, the Mayor of Rheims, Dr. Napias on behalf of the French, and Mr. Adolphe Smith, who was specially re-

quested to return thanks by the Swiss, Turkish, Russian, American, and English delegations. Madame A. Tkatchef, doctor in medicine, spoke for the ladies, and the utmost enthusiasm prevailed. The Congress then visited the cathedral, the Pommery champagne cellars, and were again entertained, this time by the municipality of Rheims, at a second lunch given in the Town Hall. Here more speeches were delivered. Those who participated in this pleasant journey will recognize that the study of serious subjects does not interfere with the spirit of mirth and the sense of enjoyment.

On the following day, Thursday, the Congress set to work again in good earnest. In Section 1, M. Delville (Bayouue) urged that the medical inspection of schools, as prescribed by the law of 1886, should be more rigorously applied, and that medical officers should be appointed for this purpose. Dr. Sevestre, of the Paris pauper children's hospital, urged that it was in its earliest manifestation that measles was most contagious, and that children suspected of this complaint should be kept away, but that the convalescents might be allowed to return earlier than was at present the custom. Dr. Layet (Bordeaux) related that, by exceptional severity toward the "suspect," they had avoided the necessity of closing schools, while Dr. Rochard insisted that the school teachers must be instructed in these matters. It was no use relying exclusively on the medical profession, for there were 28,000 communes in France which had no doctor. With regard to shortsightedness in schools, Dr. Motais (Angers) gave the results of investigation on 6,700 children. He found that shortsightedness was much more frequent in Germany than in France, but that it was growing to an alarming extent in France. He was anxious to see the course of studies varied and children prevented from looking for too long a period at some near object.

In Section 5, Dr. Alméras (Mentone) read a paper on the contagion of consumption, in which he complained that delicate persons were afraid to visit winter resorts for fear of contracting phthisis. He therefore asked that hotel keepers should take rigorous measures to disinfect rooms which had been occupied by consumptive patients. At the present time hotel keepers generally charged £12 in case of death, under the pretext that the room had to be purified; but it was rarely, if ever, properly disinfected. He proposed that the ceiling, walls, etc., should be submitted to a pulverization with a sublimated solution containing 2 of mercury per 1,000 of water and 12 in 1,000 of tartaric acid. When this was dry, then the same place should be similarly sprayed with a one-per-cent. solution of carbonate of soda. This would convert the sublimate into insoluble salts. This service of disinfection should be managed in winter health resorts by representatives of the public authority, and hotel keepers should receive written certificates from the municipalities that the work had been properly done. If this certificate could not be produced, strangers should refuse to hire the room or apartment.

Dr. de Valcour (Canues) described three cases of scarlet fever following upon each other in the same room of a hotel where disinfection had not been practiced, and called upon Mr. Adolphe Smith to describe the English law on the subject. After the Congress had heard this explanation, Senator Dr. Pacchiotti related how a lady belonging to an aristocratic and influential family was taken away by the police from an Italian hotel (though she was in a very grave condition, and subsequently died), so that she should not infect the hotel with the small-pox she had contracted. The Italian law had armed medical men with sufficient powers to see that proper precautions were taken. Dr. Felix (Bucharest), on the contrary, was loath to ask too much from the state, and more anxious to so educate the people as to make them spontaneously and willingly take the precautions judged necessary. At Bucharest they had a disinfecting stove, and he was surprised to note how many persons came of their own accord and asked to use it. The declaration of infectious diseases was not obligatory in Roumania, but the police had ample powers over hotels. A Swiss delegate explained that only in some cantons was a notification of disease obligatory. Disinfection in towns was easy, but difficult in country districts, though there were epidemics in villages as well as in towns. The section concluded that in each sanitary district a disinfecting service should be organized, and that the carding of bedding in the streets or squares of towns should be prevented.

Dr. Devillers brought forward a motion against fairs held in large

towns. He related that in 1886, in the Belleville districts of Paris, small-pox broke out immediately after such a fair, and in houses that faced the street where it was held. This present year it had been noted that there were six times as many cases of scarlet fever near one of these fairs as in other parts of Paris. In some provincial towns similar observations had been made. Apart from epidemic diseases accidents sometimes occurred, and the noise was most distressing to many persons, especially to invalids. Some speakers objected, on the other hand, that the special tax levied on these booths provided money for the elementary schools; nevertheless, the Section voted that such fairs should be held in open spaces outside large towns, and not in the streets.

Dr. Martin now read a learned dissertation on the condition of French sanitary legislation. He lamented that there was no law against infection. Theoretically the mayors had considerable powers, but, as they could not act without funds, and could not obtain funds without a vote from the municipal councils, their powers were rather nominal than real, especially in cases of emergency. Nor had the mayors received any support from the higher Courts of Appeal. For instance, during the cholera epidemic of 1885, the Mayor of Caen had suppressed a cesspool which caused a great nuisance and contaminated the subsoil. On appeal, the Higher Court, while recognizing that it might have been necessary to suppress the cesspool, decided that the mayor had no right to prescribe how this should be done, but should have left the work to the discretion of the owner. Practically, if the sanitary authority had no right of supervision, it would mean that the work would not be done, or would be done badly. Again, at Toulon, during the cholera, a man refused to whitewash his room; the municipal authorities thereupon sent their agents to do the work. The owner appealed to the local police court, and this court approved the action of the municipality, but when taken up to the Court of Cassation, this tribunal refused to confirm the decision of the Toulon police magistrate. Municipalities, after such judgments, are afraid to act. The French penal code, it is true, gives the right to sue for damages, but to apply this in cases of contagion would be so unusual that no court would grant a verdict. Yet there are laws in France that are very severe, especially against foreign epidemics, such as cholera, plague, yellow fever, and in some cases penalties of one year's imprisonment and even a sentence of death can be applied; but the utter lack of national feeling renders it impossible to apply the legislation that does exist. The French sanitary law had been justly described as the "freedom of suicide." But no one had a right to create such infection in his own house, as it was likely to travel to the houses of others. It was not always the landlord who was to blame. Often a tenant would hire a stable or coach-house and convert it into a dwelling. The text of the law was extremely vague. What constituted an unwholesome dwelling should be clearly defined, and not left to the discretion of judges, who very often were absolutely ignorant as to the rules of health. Many courts by their verdicts had set forth that they did not consider a supply of water in a house a necessity. A high court had condemned a local by-law ordering that houses should be supplied with water as an attack against individual liberty. The best method of action and of punishment was for the sanitary authority itself to effect the required improvements and charge the owner with the cost. Only this must be done promptly. As matters now stood, legal decisions sometimes were obtained months after the nuisance had ceased to exist.

The discussion on this important subject was resumed in the afternoon sitting, when the difficulty of uniting the commissions of hygiene and similar bodies composed of men technically qualified to deal with such questions, but possessing at present only the right to give advice and no executive powers whatsoever, with the mayor, the prefect, or other authorities who could act, was very fully debated. The facts also that the mayor had to consider his electors, and if it was a fashionable resort he had to be very careful not to spread alarm, were obstacles to the stringent application of prophylactic measures. Two bills had been before Parliament to create a sanitary law and a sanitary authority. The project presented by M. Siegfried was countersigned by no less than fifty deputies belonging to all parties, and yet it had fallen through, such were the purely political preoccupations of the National Assembly. Dr. Treille (Deputy of Constantine in the French Parlia-

ment) remarked that as the sanitary services had been transferred from the Ministry of Commerce to the Ministry of the Interior, and were in the hands of a man on whom sanitary reformers might rely, we could look forward to considerable improvement. Parliament would not resist a project if its necessity was clearly demonstrated, but he would suggest that the bill had better be first introduced into the Senate. Dr. Martin thought it was urgently necessary to alter the law of April 14, 1850, which had rendered the law of 1789 inoperative. The Belgians, it had been seen, had availed themselves of the law of 1789, with the most admirable results so far as Brussels was concerned. Here 12,015 lives had been saved in fifteen years. Taking the one year 1886, there were 628 deaths less than the average. Estimating every life at the modest sum of 1,000 francs, this represented a sum of 628,000 francs, and, as the Sanitary Bureau which had accomplished this result only cost 48,000 francs for the year, this was equal to an investment bearing an annual interest of 1,400 per cent. On hearing these details the Section burst into loud applause, and Dr. Janssens, the chief of the Brussels Sanitary Bureau, had to rise over and over again to bow his acknowledgments. After a few more observations from different speakers the Section adjourned.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

A CASE OF
RUPTURE OF THE UTERUS
AND A CASE OF
CÆSAREAN SECTION.*

BY WILLIAM T. LUSK, M. D.

ON this the fifth anniversary of the Fifth District Branch of the State Association it is my pleasant duty to congratulate the members present upon the prosperity of the organization they represent. The rapid growth in membership, the zeal exhibited for the principles for which the organization stands, and the scientific merit of the work performed at these annual gatherings, are all prophetic of a long and useful life. But I will not take up your time with laudations of ourselves. With the permission of the society, I wish to occupy the attention of my audience with the relation of two cases, which I have hitherto refrained from publishing, that they might have at least the merit of freshness on this occasion.

CASE I. *Labor at Full Term; Undilatable Condition of the Cervix due to Cicatricial Tissue; Spontaneous Rupture of the Uterus.*—Martha G., aged thirty-three, was brought by ambulance to the Emergency Hospital, near midnight on the 10th of November, 1888. She exhibited signs of severe suffering. Temperature, 99.5° F.; pulse, 140. The features were pinched and the face was pallid. The patient was semi-maniacal. No history was sent with her, but, so far as could be ascertained from her somewhat incoherent statements, this was her second pregnancy. Her first confinement had been a prolonged one, and had been terminated by instruments. The present labor had lasted about thirty hours.

I was hastily summoned. On my arrival I found the membranes had long ruptured, and the uterus was firmly retracted upon the child. The body was apparently situated in an oblique position, with the head directed to the left. The uterine contractions were severe and rupture was regarded as imminent. On vaginal examination, I found that no dilatation of the cervix had taken place. By pressing the index finger slowly upward, the os internum was reached. To my surprise, I discovered that the non-dilatation of the cervix was due to firm cicatricial tissue situated at the internal os and extending somewhat over the lower segment.

With the impending danger of rupture I decided upon the Cæsarean section, and, with this object in view, the woman was removed to the isolation ward in the Sturgis Pavilion at the Bellevue Hospital. At the sight of the preparations for the operation the patient began to beg and implore most piteously to be left in peace until daylight. Her cries and importunities led to hesitation, and hesitation, as the sequel shows, proved fatal, for, while the question was under debate, she called for a chamber, saying she wished to pass urine. When placed upon the vessel she began, in spite of every attempt to control her, to make violent straining efforts. Suddenly she fell back unconscious. The pulse was almost imperceptible; the entire surface was intensely pallid, and the body was covered with

clammy perspiration. It was evident that our worst forebodings had been fulfilled. Uterine rupture had taken place. The patient did not rally, and death followed in about two hours.

November 11th.—Autopsy made by Dr. T. Mitchell Prudden. In his report he says: "The body was fairly well formed and nourished; stature short; decomposition considerably advanced; abdomen much distended.

"On making the abdominal incision, the body of the child was found, corresponding to the long axis of the mother's abdomen, with the back directed to the front. The head of the child was bent sharply to the front. There was about 55 c. c. of soft red blood-clot in the abdominal cavity.

"The rent in the uterus extended obliquely across the uterus from the upper cervical portion to the right side of the fundus. The walls of the uterus were about one centimetre thick, and the ragged edges of the rent were deeply stained and infiltrated with blood.

"The placenta was firmly attached to the left upper segment of the uterus, which contained about 60 c. c. of dark, soft blood-clot.

"The *os externum* was lacerated from her previous labor. The upper portion of the cervical canal was narrowed by dense cicatricial tissue, so that its diameter was about 2 centimetres. Antero-posterior diameter of pelvis was 10 centimetres; transverse diameter, 14 centimetres.

"The anatomical diagnosis is accordingly: *Rupture of the uterus, with old, firm cicatricial contraction of the cervix uteri.*"

The case is rare, inasmuch as the cicatricial contraction was situated at the internal os and the lower uterine segment. Dilatation by incision or other artificial means was impossible. When cicatrices are limited to the lower part of the canal, which is of more usual occurrence, the obstacle to the birth of the child is usually removed by the employment of the knife to sever the limiting bands.

Again, the case furnishes a new illustration of the fact that in spontaneous rupture the laceration is not of necessity confined to the thinned lower uterine segment, as has been maintained by some of the extreme partisans of Bandl's theory.

The early performance of the Cæsarean section or of the Porro operation would probably have saved the patient's life. At the late period of her admission to the hospital either operation would have partaken of the nature of a forlorn hope.

As a supplement to the foregoing history, I hope I shall not be trespassing too much on ground familiar to my audience if I briefly review the usual mechanism of uterine rupture and the means at our disposal of combating the mischief done. Spontaneous rupture during labor is not so rare an event that those engaged in busy practice can afford to be ignorant of the means of combating the tendency to a fatal result by all the resources of modern science.

To Bandl belongs the merit of showing that nearly all ruptures begin in the lower uterine segment. In normal labors during each pain the fundus and body of the uterus thicken while the lower segment is stretched and thinned by the ovum or the presenting part of the fœtus. So long as no obstacle exists which hinders the descent of the ovum or the fœtus, this process ends in the conversion of the uterus and vagina into a continuous canal. Ordinarily in advanced

* Read at the fifth annual meeting of the Fifth District Branch of the New York State Medical Association, held in Brooklyn, May 28, 1889.

labor the lower circumference of the body is distinguished from the stretched lower segment by a thickened ridge termed the contraction ring, or the ring of Bandl. In easy labors this ring is often but slightly indicated and is found in the neighborhood of the pelvic brim.

When, however, the descent of the fœtus is hindered by any cause, the resistance of the ligaments which hold the uterus in position is overcome by the continued retraction of the fundus and body, and as a consequence the contraction ring is withdrawn upward, the lower segment is thinned, and in extreme cases nearly the entire uterine contents may occupy the distended passive inferior segment. Under these circumstances the contraction ring is strongly marked and may be felt through the abdominal walls above the pubes, or even in the neighborhood of the umbilicus. This movement upward of the contraction ring is limited somewhat by the pelvic and round ligaments and by the direction of the abdominal pressure. As these restraining agents operate more efficiently in first than in subsequent labors, it is not difficult to comprehend the relative frequency of rupture in women who have borne many children. Bandl reports nine cases of rupture in multiparæ to one in the primiparous woman. As a result of the continued retraction of the body of the uterus the lower segment may become so distended as to form little more than a membranous covering to the fœtus, and the conditions favoring rupture are established. It has been maintained upon theoretical grounds that spontaneous rupture is arrested by the contraction ring. This is certainly the rule when there has been no active intervention. My own case shows, however, that the rule has its exceptions.

Undoubtedly the popularization of Bandl's teachings has contributed greatly toward the adoption of an intelligent prophylaxis in difficult labors. Thus the physician knows that a dangerous attenuation of the lower uterine segment is liable to result from the presence of a hydrocephalic head, from a neglected shoulder presentation, or where the descent of the child is hindered by pelvic contraction, by cicatricial tissue, or by tumors obstructing the parturient passage. The situation of the contraction ring, which, when well defined, can usually be felt through the abdominal walls, furnishes in many cases an index of the degree of the threatened danger. The risks are further increased in cross-births and in lateral and anterior displacements of the uterus, owing to the augmented pressure exerted under such conditions upon a limited portion of the already overdistended tissues.

If rupture occurs under these circumstances we can not wash our hands of responsibility. We know that the faulty uterine positions should have been early corrected by judicious bandaging, that the hydrocephalic head should have been reduced in size by puncture, and that in all forms of obstructed labor there is a time when patient waiting ceases to be a virtue and active intervention is demanded. This is not the place for the complete consideration of the resources of our obstetric art. But the new learning teaches us that when the uterine efforts have proved unavailing to fix the presenting part, and the increasing distance of the contraction ring from the pelvic brim points surely to a

dangerous thinning of the uterine muscle, the physician must decide promptly upon the indicated measures of relief. These in head presentations are version, craniotomy, and the Cæsarean section. In neglected shoulder presentations only cautious attempts at version are justifiable. If turning is attempted, the operator should never forget to support the head with one hand through the abdominal walls in such a way as to relieve the strain upon the overdistended tissues. In case of failure, the persistent use of rude force is criminal. The alternatives from which choice should be made are decapitation of the child and the Cæsarean section.

My object in dwelling upon these points is the fact that I do not believe that uterine rupture is by any means so rare as statistics would seem to indicate. Statistics do not take into account innumerable cases buried out of sight by ignorance or by silence.

While insisting, however, upon a rule of personal accountability as regards the obstetric attendant, it is necessary to recognize that to Bandl's scheme there are exceptions. Now and then cases are reported in which primary rupture has occurred in the fundus and in the body, and where the lower segment has given way without antecedent signs or warnings. Thus I once witnessed an instance of spontaneous rupture in a woman with an ample pelvis who had previously given birth with ease to nine children. The head of the child presented and no abnormal condition of the soft parts was recognizable. There was nothing to account for the occurrence excepting a supposed vulnerability of the uterine tissues.

Rupture may be complete or incomplete. In the latter the tear is confined to the muscular structures and the peritonæum remains intact. This is more likely to occur in lateral tears at the site of the folds of the broad ligaments, though, owing to the relatively loose attachment of the peritonæum at the lower segment, incomplete ruptures are not necessarily confined to these points. In most instances the hæmatoma resulting from the bleeding vessels dissects up the peritonæum for a certain distance beyond the tear.

In the complete form the peritonæum likewise gives way, but often to a less extent, and in these cases dissection of the peritonæum from the uterine muscle beyond the borders of the tear would seem in many instances to show that a certain interval had existed between the rupture of the muscular tissues and that of the peritonæum.

When the shock, the sudden stoppage of the uterine pains, the recession of the presenting part, the bloody discharge, and the lateral tilting of the fundus or its apparent disappearance in the case of the passage of the entire child into the abdominal cavity have led to a diagnosis of rupture, the first indication for treatment is the speedy removal of the child. In selecting the manœuvre by which this is to be accomplished—*i. e.*, whether by forceps, by version, by craniotomy, or by laparotomy—the important consideration to be kept in view is that it shall to the least extent possible increase the dimensions of the already existing rent.

In general terms it may be stated that with an undilated cervix, or in cases of extreme pelvic contraction, or after the passage of the head and arms through the rupture,

and in all cases where the child passes entirely into the abdominal cavity, laparotomy is the more conservative measure. Not only is there less shock, but the opening of the abdomen enables the operator to remove effused blood and amniotic fluid from the peritoneal cavity. Still, the not uncommon impression that the ruptured uterus furnishes a promising field for abdominal surgery does not take into account that in so many of the cases where laparotomy is clearly indicated the patient is practically moribund. Even our most enthusiastic salpingotomists are disposed to restrain their benevolent impulses in the presence of impending death.

The employment of the suture to close the uterine wound, in view of recent Cæsarean successes, sounds reasonable, but it is to be borne in mind that with ragged borders infiltrated with blood, with the peritonæum stripped off, and sometimes with emphysema of the subperitoneal connective tissue, the conditions for union are in no wise comparable to those which exist in the Cæsarean section. The Porro operation promises fairer results, though the deep situation of the tear makes it difficult to secure a healthy pedicle. Godson collected seven cases, all of which terminated fatally, but Slavjansky and Fontana have each more recently reported a recovery after the Porro operation.

When the abdomen is opened, even if hesitation is felt about the deep suture or complete extirpation, there should be none concerning the suturing of the peritoneal surfaces. The rupture is thus converted into an incomplete one with its more favorable prognosis.

When the child can be removed by the natural passages without increasing the extent of the rupture, and the latter is confined to the lower segment, laparotomy is of doubtful value. In many such cases recovery *quoad vitam* has been obtained by the employment of antiseptic irrigation and filling the gap with antiseptic gauze. Drainage at the same time should be secured by means of iodoform wicking, or the bent rubber tube passed for an inch or two beyond the torn borders. Drainage and packing are most effective when the tear is situated in the posterior wall. The plan of treatment recommended is, of course, only effective where no infection of the abdominal cavity has taken place at the time of rupture. The best results are obtained, therefore, in cases of incomplete rupture. At the same time that drainage is used, compression of the fundus and body should be employed by means of the hands through the abdominal walls, and, in case of hæmorrhage, effective aid can be furnished by pressure made upon the aorta. It may be necessary to maintain manual compression for hours. Finally, a carefully graduated compress should be placed around the uterus to maintain firm contractions. For this purpose I prefer to employ the hydrostatic bag, which I now show. It is of rubber, of a disc shape, and furnished with a tube by which it is partially filled with water. In the condition under discussion and in all forms of post-partum hæmorrhage I have found the bag most effective. It adjusts itself nicely to the contour of the contracted uterus, and sometimes has seemed to me to work as intelligently and as surely as the skilled hand of the operator.

I have stated that by drainage a fair number of recov-

eries have been reported so far as life was concerned. In a portion of them, in a recent discussion before the Vienna Obstetrical Society, it appears that there was not a complete *restitutio ad integrum*, an opening into an adjacent sac, either formed by the folds of broad ligament or by false membranes, persisting after removal of the dressings.

CASE II. *Patient with Kyphosis; Pregnancy complicated by Pendulous Abdomen; Cæsarean Section, with Fatal Termination to Mother, Child living.*—Ellen M., aged twenty six, native of England, unmarried; father died of phthisis at the age of fifty-six; three brothers and five sisters living and in good health. Patient was a healthy child and had no sickness until she was six years old. At that time she fell down four stone steps, striking her back upon the corner of one of them. She could not raise herself and had to be carried to her bed. After three days she got up, but noticed pain on trying to straighten her back. Weeks afterward a swelling formed at the seat of injury. An abscess followed which discharged for about five years. It then healed, but subsequently broke out again, and has discharged intermittently up to a year ago. The consequent spinal deformity has increased continuously. There have likewise been psoas abscesses on both sides opening at the groin, and there are marks of old sinuses on the outer side of either thigh.

Patient was admitted to the hospital December 12, 1888. According to her recollection, she menstruated last in the early part of April. On examination, the patient was found to measure fifty-one inches. Owing to the extreme kyphosis, the three lower ribs overlapped the ilia. The space between the sternum and the symphysis was greatly diminished, so that the uterus in its development had been directed forward and outward. On admission, the fundus was four inches below the level of the pubic wall. For four months previous the patient had suffered constant pain in the back and on the left side; the bowels had been constipated, but no uneasiness had been experienced from pressure on the bladder.

The indication for Cæsarean section resulted not so much from the pelvic contraction, though the outlet was greatly narrowed, as from the faulty position of the uterus, which directed the head backward and high up above the promontory. Rectification was rendered impossible by the nearness of the sternum to the symphysis. With the limited space at our disposal, with the elevation of the presenting part, and with the acute angle formed by the body of the uterus with the cervico-vaginal canal, it seemed impossible to devise any plan of extraction by the natural passage which would not have subjected the utero-vaginal tissues to the certainty of fatal laceration.

At about eleven o'clock in the night of December 13th labor pains began quite suddenly and severely, recurring by twelve o'clock at five minutes' intervals. At midnight a hypodermic injection of seven minims of Magendie's solution of morphine was given with the view of delaying labor until daylight. The patient fell asleep and rested until seven in the morning, when the pains recurred. I was then sent for. The patient was bathed, and the bowels, which had previously been regulated with care, were emptied by a large enema.

December 14, 1888.—(Notes taken by Dr. D. H. McAlpin, Jr.) Operation by Cæsarean section. Operator, Dr. Lusk. Assistants on the operation, Dr. Greene and Dr. White. Ether by Dr. Maury. Instruments passed by Dr. Williams. Ligatures held by Dr. Anderton. Baby cared for by Dr. C. A. Smith.

9.57 A. M.—Hypodermically, Magendie's solution, ℥ viij; atropine, gr. $\frac{1}{16}$.

- 10.00.—Temperature, 98·6° F.; pulse, 142; respiration, 28.
 10.05.—Ether started by Dr. Maury with Clover's apparatus; less than half a pound used during the operation.
 10.09.—Chloroform, ʒ ij, given.
 10.12.—Incision from left of umbilicus down to symphysis pubis.
 10.14.—Abdominal cavity opened.
 10.16½.—Uterus drawn out of abdominal cavity.
 10.17½.—Rubber ligature placed about uterus.
 10.18.—Incision made into uterus.
 10.19.—Left arm of baby presented; cried loudly; given to Dr. C. A. Smith.

- 10.57½.—Returned uterus into abdominal cavity.
 10.58.—Abdominal sutures of wire, twelve in all.
 11.09.—Sponges removed from abdominal cavity.
 11.17.—Finished tightening wire sutures. Operation ended.
 11.34.—Ergotine, gr. j, whisky, ℥ xx, hypodermically. Dressed and in bed.

1 P. M.—Temperature, 98·8°; pulse, 138; respiration, 19.

The operation was purposely performed in a leisurely way. The time occupied from the first incision to the introduction of the last suture was an hour and five minutes. The slight lateral tear mentioned in the report occurred in the extraction of one of the shoulders. Owing to the small amount of abdominal space, the uterus, even after the removal of the child, subjected the abdominal stitches to a severe strain. As the sequel will show, it was a mistake in this instance not to perform the Porro operation.

For the first four days subsequent to the operation all went well. The temperature varied between 99° and 101·5°, but the higher temperature was of short duration, lasting usually for an hour or two at midnight. The pulse ranged from 110 to 120, and was of good quality. The stomach behaved well. The kidneys secreted freely. The external wound presented a most favorable appearance. Save for occasional attacks of flatulence, there was little discomfort experienced. No doubt was entertained of a favorable result, the unruly disposition of the patient alone furnishing ground for anxiety.

The fifth day (December 18th) began in the same promising manner, but in the early afternoon the patient became restless, tossed about in bed, and tore at her dressings. Remonstrances were unheeded, vomiting set in, tympanites developed, and the pulse became very rapid. In spite of every form of stimulation, collapse was well marked by nine o'clock, and death occurred at eleven. The only high temperature reached was at 7 P. M., when for a brief period it rose to 103·5°.

It was not easy to account for the cause of this sudden change. It was presumed by those of us who had watched the case that an insidious form of septic peritonitis had closed the scene; but at the autopsy, which was made on the 20th inst., there

was no serous or purulent exudation, and no trace of peritonitis except a slight redness at the line of the abdominal incision. The uterine wound had healed kindly, and the organ itself appeared healthy. The only disturbance evidenced in the process of repair was a slight superficial separation of the tissues at the site of the lateral tear mentioned in the history.

Of special organs, the intestines, the spleen, and the kidneys were healthy. The heart weighed eight ounces. On the right side the cavity was dilated and the walls were hypertrophied, and the left ventricle appeared contracted, whereas eccentric hypertrophy of the left ventricle is the rule in pregnancy. The aortic valves were normal; the mitral valves were somewhat thickened. The most sur-



Post-mortem appearance of the uterine wound.

- 10.19½.—Cord tied.
 10.20.—Cord cut.
 10.21½.—Placenta detached entire; a slight tear, less than an inch, at lower left side, starting from and at right angles to the vertical incision.
 10.22.—Douche of Thiersch's solution used to cleanse the inner side of uterus, and passed through into vagina.
 10.24.—Began suturing uterus; deep sutures of heavy silk, fourteen in all.
 10.31.—Began tying sutures.
 10.39.—Put in eighteen superficial sutures, five of which were of very fine silk.
 10.52½.—Loosened ligature about neck of uterus.
 10.53.—Hypodermic of ergotine, gr. ij.
 10.56.—Ligature about uterus removed.

prising result of the autopsy, however, was the size of the lungs. The diaphragm reached on the right side to the upper border of the third rib, on the left to that of the second rib. The right lung weighed six ounces, the left lung five ounces, while the combined weight in the healthy female is from thirty to forty ounces. The liver weighed three pounds and twelve ounces, was marked by the ribs, and showed evidences of fatty degeneration. At this stage it was concluded that death was the result of the patient's feeble resisting powers, due in part at least to the small size of the lungs, the unhealthy liver, and other consequences of extreme spinal deformity.

It was then decided to remove the pelvis. In attempting this, large abscesses were found, distending the sheaths of the psoas muscles, having their origin in carious bone at the site of the angle in the vertebral column. How far this condition was responsible for the fatal termination is, of course, a matter of conjecture. But, when one considers the small amount of space originally existing in the abdominal cavity, it seems probable that the encroachment made upon it by the pus collections must have contributed largely to gas accumulations in the intestines, to discomfort to the patient, and to interference with the processes of digestion and absorption—functions of the utmost importance for securing convalescence. I can not but feel that, had Porro's operation been performed, the increased room thereby obtained would have been of signal advantage. Still, from the outset the unruly disposition of the patient was a heavy weight in the balance.

DYSPHONIA SPASTICA.*

By FREDERICK I. KNIGHT, M. D.,

BOSTON.

I WOULD like briefly to introduce this important subject, in the hope that, as so little has been published on it, I may perhaps be the means of drawing out some unpublished observations by members of this association, before whom the subject has not been presented in many years.

All of our members are probably familiar with the disturbance of the voice-production which has been variously named aponia spastica, aphthongia laryngea spastica (Gottshelm), stammering of the vocal cords, spasm of the tensors, speaker's cramp, etc.

In this phenomenon there is evidently a spasmodic action of the muscles of phonation or respiration, or both, which gives rise in the majority of cases to a high-pitched, jerky, and feeble voice. There is sometimes a long intermission in the vocal sound, so that the term aponia spastica might be appropriate, but in the cases which I have seen the term dysphonia spastica seems more suitable.

The fellows of the association who were present at the meeting in Boston in 1882 will remember a patient with this affection well marked, whom I presented to them. Since that time I have seen only four cases, which leads me to agree with Sir Morell Mackenzie, who considers the affection a very rare one, rather than with Mr. Lennox

Browne, who considers it "so far from being rare, in its milder forms one of almost every-day occurrence." We do sometimes see a condition of somewhat similar nature in cases of acute laryngitis, and perhaps such a condition might be easily overlooked when a patient was suffering from acute inflammation of the larynx, and every effort was being made to prevent him from using his voice, but I am sure that as a chronic condition the phenomenon can not be overlooked, and consequently, in my experience, I believe that it is rare.

Three of my cases occurred in men, and one in a young woman of twenty years. One of the men was a physician, one was in mercantile business, and one was superintendent of a factory, where he was obliged to talk to men in the midst of much noise. His mother, moreover, was deaf.

The woman, whom I have recently seen, is a teacher, and the trouble developed while she was forcing herself to talk with a hoarse cold. This is the lightest case I have ever seen, and one in which it might appear that the prognosis was better than usual, though the condition has already existed a year. There is no obstruction in the nasal passages, but, on the contrary, a tendency to an atrophic condition, and a slightly offensive secretion. Under the use of cleansing solutions for the nose, strychnine internally, and cold douches, the spastic symptoms have improved, but they return, especially on conversation with strangers. Massage of the larynx or compressing the wings of the thyroid improves the voice temporarily. There is nothing especially morbid on laryngoscopic examination, and I was not able in any of the cases to obtain a view of the spastic phenomenon. It seemed as if the simplicity of the required vocal effort prevented nervous excitement.

In the absence of post-mortem examinations it is impossible to say what the lesion is in these cases.

It seems natural in some, with Schech, to call the affection a co-ordinated neurosis of occupation, like writer's cramp, etc. Cases like that of Heymann* suggest a central lesion, while such cases as E. Hoffman's† and Hering's‡ suggest a probable reflex origin.

The lesion and mechanism are probably not always the same.

My own experience in these cases would lead me to regard the prognosis as very unfavorable, but of course would be favorable in reflex cases dependent on a cause capable of removal, as in Hoffman's patient, who was cured by the removal of the hypertrophied anterior ends of the middle turbinates.

I have nothing to add to the long list of therapeutic measures laid down by Schech and others—viz., absolute rest of the voice, galvanism of the throat and brain, vocal exercises, tonics, and cold douches on the head and neck, which latter remedy cured one of Schech's cases after all other treatment had failed.‡

I would like by this communication to draw out from

* "Internationales Centralblatt für Laryngologie, etc.," vol. iii, p. 260.

† "Monatsschrift für Ohrenheilkunde, etc.," 1885, p. 428.

‡ "Internationales Centralblatt," vol. ii, p. 571.

* "Monatsschrift für Ohrenheilkunde," 1885, p. 1.

* Read before the American Laryngological Association at its eleventh annual congress.

the fellows of this association a report of every case of chronic aphonia or dysphonia spastica which has been cured or modified by treatment.

REPORT OF TWO CASES OF BUCCAL TUBERCULOSIS.*

BY C. E. BEAN, M. D.,
ST. PAUL, MINN.

I AM aware that during the past two years a great deal has been written on this subject and quite a number of cases reported, but I wish to add these recorded cases, for only by additional notes and evidence can data satisfactory and conclusive be obtained.

One of these cases is of especial interest, not only from the extent of the ulceration, but from the fact that it was developed in a female, this being, so far as I can learn, only the third case of the kind on record.

CASE I.—Henry B., farmer, aged thirty-two, was seen in May, 1887, and gave the following history:

Up to four years before this time he was entirely healthy, with the exception of a slight cough. After working hard all of one afternoon, drawing water from a well with a bucket, he expectorated a slight amount of blood. This had continued at intervals ever since, though at no time was there any severe hæmorrhage. Up to a year ago he had not lost any flesh. In the fall of 1886, whenever he smoked or chewed tobacco, his tongue would sting and burn and get very red. This troubled him to such a degree that he was forced to give up the use of tobacco altogether.

Four months ago (January, 1887) a sore appeared on the right side of the end of the tongue, commencing like a crack. Two months ago (March, 1887) it began to grow larger, and has gradually grown ever since. At this time the tongue began to swell, and is now (May, 1887) about twice its normal size, while an ulceration extends on the right side from the tip back as far as the middle, three sixteenths of an inch deep, with shelving edges. On the 4th of July, 1886, he caught a severe cold, and, following that, his voice was a trifle hoarse. In the middle of March, 1887, his throat began to get sore, and his voice grew gradually worse until, about ten days after, his voice had entirely disappeared.

Two years ago his weight was one hundred and fifty-five pounds; one year ago, one hundred and forty-five pounds; now only one hundred pounds. Unable to swallow any solid food, and only a small quantity of liquids.

Examination of the Larynx showed thickening and ulceration of the right free edge of the epiglottis and ulceration of both vocal bands their entire length.

Examination of the Chest.—Dullness on percussion over entire right lung, with moist râles. Bronchial breathing and dullness in apex of left lung.

Family history: Both parents living, and over seventy years of age. Father's sister died of phthisis. His three brothers and two sisters are healthy.

Temperature, 101.2° F.; pulse, 124; respirations, 34.

As the patient resided at a distance and it was plainly evident that he had only a few days to live, I sent him home and advised morphine hypodermically and cocaine locally to ease his intense suffering.

CASE II.—Mrs. S. was seen in August, 1887. Her history was as follows:

Family history: Mother died of consumption, aged forty-five, and a maternal aunt with the same disease, age unknown.

Patient's history: Up to three years before the time I saw her her health had been comparatively good. At that time, following a cold, she had protracted cough, with slight frothy expectoration. This continued for six months, when cough and expectoration almost entirely ceased, the cough being only in the morning and at night. About one year after the first symptoms she had, without any premonitory symptoms, a severe hæmorrhage; slight hæmorrhages followed, at intervals of from three to six months, up to the time I saw her. During the last two years the expectoration had been thick, firm, and yellowish-green in color.

Some time in the spring of 1887 (the patient thought in February or March) her tongue began to feel sore and stiff, with occasional severe pains, but mostly a dull aching.

About June there appeared, near the tip of the tongue on the right side, a small ulceration, which grew rapidly until, in August when I saw her, it had extended along the right side of the tongue, involving the lower portion of the tonsil and back wall of the pharynx on the corresponding side. The tongue was thickened, and the act of deglutition was accompanied by excruciating pain. The voice was thick and muffled, and it was only by an effort that any words could be articulated.

The ulceration was irregular in shape, with for the most part clean-cut edges. The floor of the ulceration was bathed in pus. Examination of the larynx showed only a superficial inflammation.

Examination of the lungs showed extensive destruction of the right lung and consolidation of the upper lobe of the left lung. Temperature, 100°; pulse, 110; respirations, 28.

The following line of treatment was advised to the consulting physician:

Internally, cod-liver oil.

Locally, applications of oleate of cocaine (5 per cent.) made to the entire ulceration, and afterward lactic acid to be carefully applied.

This patient lived two months, but at no time was there any improvement in the appearance of the ulceration or relief from the pain.

Tuberculosis of the tongue is to be especially distinguished from carcinoma and syphilis. When it is secondary it is not a difficult question; but the development of it primarily has been so frequently demonstrated, although it is in a large proportion of cases secondary, as to render its existence no longer a question.

It is distinguished from carcinoma by the absence of the glandular enlargement and the sharp lancinating pains characteristic of the latter disease.

From syphilis, outside of a positive specific history, the internal administration of antisyphilitic remedies alone can settle the diagnosis.

Treatment.—In neither of the two cases reported was there any opportunity for personal attention to treatment; indeed, both cases were so far advanced that no amount of treatment could have been of any permanent benefit.

The three plans of treatment most advocated are curetting, with subsequent applications of the cautery, excision of the tongue, and lactic acid.

In a paper on this subject read before this association in 1886, Dr. Delavan reports a case cured by excision.

* Read before the American Laryngological Association at its eleventh annual congress.

Lactic acid has been very much vaunted, and one or two cases are reported as having been cured by means of this remedy, well rubbed into the ulceration; but the numerous failures to even afford temporary relief seems to demonstrate the fact that it is no more to be depended upon when the disease is situated in the tongue than when it has been developed in the larynx; and the result of treatment in that location has been disappointing.

Thorough and deep curetting, with careful and repeated applications of the Paquelin or galvano-cautery, offers the most efficient plan of treatment yet suggested for the primary manifestation.

When it is secondary to lung complications we are as powerless to arrest its progress as we have ever been.

NOTE ON THE OCCASIONAL TOPICAL USE OF
SOLUTIONS OF SILVER NITRATE
IN THE TREATMENT OF CHRONIC LARYNGITIS.*

BY SOLOMON SOLIS-COHEN, M. D.,
PHILADELPHIA.

THERE are many subjects of greater scientific interest than the treatment of chronic laryngitis, yet very few of more practical importance to a large number of our patients.

The general questions of therapeutics, systemic and topical, of this affection have been so ably and thoroughly discussed in text-books and special articles by so many distinguished members of this body, that further elaboration now would be superfluous; and I simply desire to briefly communicate the results of personal experience during the last three or four years with a single agent, for the purpose of eliciting an expression of opinion from the competent observers present as to the real value of that agent—once overused, now over-neglected.

There is no necessity to report cases in detail. They have not been due to nasal disease or obstruction, nor have they been those in which all topical treatment is unnecessary. Where indigestion, constitutional disease, or diathesis have been present, these have, of course, received due attention—hygienic, dietetic, and medicinal. It is thus simply of topical applications for the relief of local conditions that I speak. We have all encountered cases of chronic laryngitis, especially in singers, clergymen, lawyers, traveling salesmen, public speakers, etc., in which, after all discoverable sources of irritation, local or general, have been removed, and approved topical treatment suited to the individual case has been faithfully employed for a longer or shorter time, improvement would take place up to a certain point and there stop. Perhaps all visible evidence of disease, except an irregular pinkish striping of the vocal bands, would have disappeared; or perhaps there would be a uniform faint coloration, or may be only a loss of luster; but something there would be that persisted and that prevented the patient from resuming with comfort full use of the voice in singing or speaking, or perhaps even in ordinary conversation for social or business purposes.

* Read before the American Laryngological Association at its eleventh annual congress.

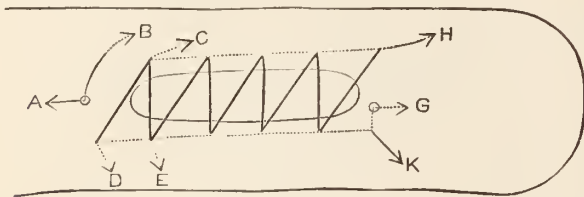
It is in such conditions as this, the last obstinate remnants of the disease, that I have derived considerable satisfaction from the topical use by sponge, cotton-wad, or brush of weak solutions of silver nitrate, about ten grains to the ounce, applications being made every day for two or three days until some congestive reaction was produced; after that at longer intervals. In the course of treatment, too, in some cases, before reaching the last stage above described, I have found recovery apparently hastened by occasionally substituting stronger solutions of silver nitrate, forty to sixty grains to the ounce, for the iodized glycerin, tannin, tar, or other routine application. A visible increase in congestion immediately follows the use of the silver solution; but this passes off quickly, and at the next visit great improvement is usually manifested. These applications are made once in about two or three weeks, according to circumstances. By thus using solutions of silver nitrate, not as a routine measure, but occasionally in the course of other treatment, as a topical stimulant—the strength of the solution being in inverse ratio to the progress of the case toward recovery—I believe that in very many of the cases in which topical treatment is indicated recovery may be hastened; and in particular that the troublesome final stage may be managed with greater ease than by the use of any other agent with which I am acquainted.

A CONTINUOUS SUTURE FOR THE
INTESTINE AND OTHER ABDOMINAL VISCERA.

BY CLARENCE L. LEWIS, JR., M. D.,
HOUSE SURGEON, BELLEVUE HOSPITAL.

I HAVE noted that nearly if not all of the sutures employed to appose serous surfaces have the following objections brought against them—viz., first, that they are interrupted and do not hold the surfaces in close and even apposition; second, that all the tension of each stitch is placed upon a single thread; and third, but by no means the least, that the time required to place them jeopardizes the life of the patient. Meditating upon the possibility of obtaining a suture that would rectify these objections, and performing a few experiments, I have in the end secured a continuous silk suture that, in the opinion of many eminent surgeons, meets all the requirements. First, it is continuous and easy to execute, and holds the serous surfaces evenly in apposition; second, the tension, instead of being made by a single thread, is made by a side-stitch of an eighth to a quarter of an inch; and, third, it can be applied very rapidly. My only experiments have been upon the cadaver, with very happy results. This suture is especially adapted to wounds of the intestine and to complete resection of that viscus. The great difference between the sutures now used and the one I propose to describe is as follows: The stitches in my suture run along the sides of, as well as across, the wound. They are placed in position loosely until the suture is finished, and then the loops are caught and drawn taut. In its completed state the peritoneal surfaces, which are inverted, are supported by side pillows of silk, while the exterior shows cross retention threads. I use a small Hagedorn (curved) needle, threaded with small iron-dyed silk.

In a small wound of the intestine I first fix my suture with an ordinary Lembert stitch, and end it with the same stitch; but in a complete resection the suture finishes itself.



The drawing shows how simple the suture is. Commencing at the point A, we make an ordinary Lembert stitch. We next enter the needle at the point B, and, carrying it through the peritonæum and into the muscular coat, bring it out at the point C. We next enter the needle at the point D, and in the same manner bring it out at the point E, opposite the point C. In like manner we proceed to the end, leaving small loops in each stitch. Our next move is to tighten the loops, beginning at the point D. When the loops have all been taken in, a Lembert stitch, G, is made to fix the end securely. These Lembert stitches are not required in the complete resection suture, as it is easy to see that the points B and K would be opposite, and could be readily tied with a square knot. Now, the question for consideration is, What faults *could* be found with this suture? I underscore the word *could*, for I can think of but one—viz., Would there be any danger of strangulation of the tissues between the sub-peritoneal (dotted) lines and the edge of the wound? This is a question which I can not answer at present. But, even if it did occur, which is very improbable, the adhesion of the peritonæum would prevent any infection, for, when the loops are drawn taut, the points B and D and the points E and C would become approximated, thus shutting that portion within the caliber of the intestine.

A CASE OF OVARIAN TUMOR IN A GIRL SEVEN YEARS OLD.

OVARIOTOMY: RECOVERY.

By W. D. HAMAKER, M. D.,

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CASES of ovarian tumor before puberty are very rare. The youngest patient operated upon was that of Roemer, of Berlin, who removed successfully a congenital tumor from a child twenty months old, which proved to be a dermoid cyst as large as a child's head.* Roemer collected a number of additional cases. Dr. Neville, of Dublin, operated on a child aged two years and eleven months; Busch had a case at two years of age, and Aleott's patient was three years old. All of these cases were unsuccessful. Schwartz successfully removed a large proliferating tumor from a child, four years old, with precocious puberty. Barker had two cases, and Knowsley Thornton one case at seven years, while Speneer Wells, Cupples, and Chenoweth had each a case at

eight years.* In addition to these cases collected by Roemer, Wegscheider reports a bilateral cystoma, in a girl twelve years old, which weighed about seven pounds, and Marjolin removed a multilocular tumor, weighing nineteen pounds, from a girl eleven years old. Gaillard Thomas removed, post mortem, a large tumor from a child aged three and a half years.† A second case, three years old, is reported, but the operator's name is not given.

Among one hundred and ninety-seven cases of dermoid cyst collected by Pauly, Lebert, and Olshausen, seven cases were in children under ten years of age.‡ A number of cases of sarcoma and carcinoma of the ovary, in those under twelve years, are reported by Olshausen and others. Lucas reported to the Clinical Society of London, in 1888, a case of round-celled sarcoma, which he had removed successfully in February, 1885, from a girl, seven years old, who had exhibited precocious puberty.‡

To these cases I wish to add a report of the case which recently occurred in my practice:

I was called to see Annie A., aged seven years, on October 22, 1888, and learned that her family history was good, no hereditary disease having existed, nor had there ever been a case of ovarian tumor in the family. There was no history of injury, nor had she shown any of the signs of puberty. She had been in good health until April, 1888, when she began to fail gradually in health, with pain in the left side and a slight tendency to bend forward in walking. During the spring and summer she continued to fail in health, and had considerable dyspnoea. In August the parents first noticed abdominal enlargement, and also noticed the "blue veins" over the abdomen. During this time she had been treated for various diseases. When I first saw her she was anæmic and very much emaciated. She was unable to lie down, on account of the dyspnoea and pain just below the region of the liver. She was passing large quantities of limpid urine, which was low in specific gravity and without albumin.

At first, on account of extreme tenderness, the examination was very unsatisfactory. There appeared uniform enlargement of the abdomen, and the walls of the abdomen were quite tense. Fluctuation was made out, and dullness on percussion, except in the sides low down when she was lying on her back. I gave her an anodyne and a ferruginous tonic. Under these she was relieved of pain and seemed stronger in a few days. I aspirated her on November 4th, and drew off six pints of dark ovarian-like liquid, which, under the microscope, revealed the usual cells of ovarian fluid. After the aspiration a tumor of the size of a child's head could be made out, apparently growing from the *left* ovarian region. She was now quite comfortable, and in a few days was able to be about the house.

The operation of ovariectomy was now agreed to by the parents, and I placed her on a course of tonic treatment to prepare her for it. For two weeks she did very well, when the cyst began rapidly to fill again. The patient asked to have the operation postponed till after the holidays, and, although the tumor was enlarging very rapidly, this was agreed to, and the operation was set for January 3, 1889, when, at 11 A. M., I performed ovariectomy with strict antiseptic precautions. I was very kindly assisted by Dr. Eagleson, Dr. Cotton, Dr. Calvin,

* "Brit. Med. Jour.," April 12, 1884.

† Olshausen, "Cyclo. of Obstet. and Gyn.," vol. viii, p. 80.

‡ *Ibid.*, p. 354.

* "International Jour. of Surgery," July, 1888.

* "Brit. Med. Jour.," April 12, 1884.

and Dr. Carmichael. After etherization, a short incision was made from the umbilicus to a point an inch above the pubes. A few adhesions were found at the point of aspiration, and also the omentum was found adherent at several points. These were easily broken up and the contents of the cyst drawn off. The sac was now drawn from the opening, and, instead of arising from the *left* ovary, as it appeared after the former aspiration, it was found to be a cyst of the *right* ovary. There were one large cyst and several "daughter" cysts, and the tumor was attached by means of a long pedicle. The cyst had the glistening appearance of the ordinary ovarian tumor. The pedicle was ligated with strong silk, cut off, and dropped. No bleeding point required a ligature, and the cavity was quickly cleansed and the abdominal wound closed with silk sutures. A strip of lint well covered with carbolyzed vaseline was laid over the wound, and over this was laid salicylated cotton. Over this was placed a large pad of absorbent cotton and the bandage applied.

The patient quickly revived, and showed very few signs of shock. At 5 P. M. the temperature was normal and she vomited slightly. She required no catheterization, and, beyond the rest-les condition to be expected, there was nothing to note.

January 4th.—Morning temperature was 100.4° F., evening temperature 99.4°, pulse 132. During the day there was some pain and she was quite restless. Some bromide of potassium was given. A half-ounce of milk was allowed every two hours.

5th.—Temperature 99.4° in the morning, normal at night. Nervousness had disappeared, and she was doing very well. Milk increased to one ounce every two hours.

6th.—Milk increased to two ounces every two hours. At 10 P. M., after crying violently for something to eat, she fell asleep and had a profuse cold sweat with symptoms of beginning collapse. The temperature had been 100.4° in the morning, with the pulse at 108. In the evening after the sweat the temperature was 97° and the pulse 90. No pain or tenderness was noticed. Applied heat and gave some whisky and milk.

7th.—Doing well. Morning temperature 98.4°, pulse 90. Slight tenderness was felt over the umbilical region. Tongue clean; slight inclination to have bowels moved. Added beef tea to the diet.

8th.—Temperature normal, pulse 90 and strong. Dressed the wound and found no tympanites and very little tenderness. Ordered castor-oil and syr. rhei arom., āā f ʒ j.

9th.—Bowels moved well.

10th.—Doing well.

13th.—Removed the stitches.

24th.—Patient is in good condition and general health rapidly improving. No hardness or tenderness at any point. Allowed her to sit up.

From the last-mentioned date she rapidly improved and made a good recovery. At the present time (July 30th) she is in excellent health.

883 WATER STREET.

Laryngeal Ulcers in Typhoid Fever.—"Dr. Antonoff publishes in the "Ejenedelnaya Klinicheskaya Gazeta" the result of a series of histological examinations of laryngeal ulcer occurring in typhoid fever. The earliest change, he says, is a hyaline degeneration of the membrana propria of the capillaries and smaller arteries, and in places of the connective tissue of the mucous membrane. The epithelium dies from coagulative necrosis. The reticulum formed becomes the seat of micrococci. There is no inflammatory infiltration in the broken-down tissue, but the process takes place on the border between healthy and morbid tissue. If the ulceration goes deeper, perichondritis with formation of pus, phlegmonous inflammation of the soft parts, and loosening of the fibers of the cartilage take place."—*Lancet*.

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CONVENTIONAL MOURNING OR HEALTH?

WHICH shall it be? The time has come to choose. Unmitigated mourning must go. A movement has been started in England to put an end, if possible, to the present irrational mourning costumes that exact of women great personal inconvenience, physical injury, and disastrous expense. The conventional costume of a well-bred widow, for instance, possesses every known quality of unhygienic, non-æsthetic, and costly dress. Proper exercise while she is wearing it is out of the question. Seclusion is secured in ways less barbarous perhaps than inducing deformity of the feet, yet our occidental mourning customs effectually keep women within doors. The heart of the stoutest warrior might quail within him if a quiet stroll required the wearing of two crape veils, each six feet long originally and only slightly shortened, but not lessened in weight, by a hem half a yard deep—one veil to be worn over the face and the other to hang down the back! The widow's gown must be inconveniently long, the outside garment must cling, and both must be made of inelastic, non-inspiring material. Add to this that within, which passeth show, and the picture is pretty black. The husband who loses his wife escapes such outward trappings, not being forced to adopt any special habiliments that can incommode or injure him. A simple band around the hat announces the fact of his changed circumstances and secures freedom from idle questions. Strange inconsistency of custom that thus discriminates between men and women, and always to the disadvantage of women in point of health!

In this new crusade of common sense Lady Harberton takes the lead, setting forth in a recent article the reasons why existing mourning costumes should be abandoned by all sensible women. The materials now in use are in themselves injurious, the dyes being often of a poisonous nature and frequently injuring the skin and ruining the complexion. What woman who indulges in conventional mourning escapes the staining process resulting from damp crape? Only the victim can know the energy and perseverance required to remove from brow and neck the literal clouds that gather from such a cause. The harm to the exterior of the body is easily perceived. Not less injurious is the irritation to the respiratory tract caused by minute loose particles of poisonous crape. To the pang of separation is added the thought that our loved ones are condemned to suffer physical discomfort for a year or two, and, possibly, disease for an indefinite period.

Lady Harberton suggests that persons should provide in their wills that no mourning should be worn for them. This might have a modifying effect upon things as they are. But,

of course, the whole matter, like every other social and domestic question, rests entirely with oppressed womankind. Women are not driven into mourning at the point of the bayonet. The Quakers get along very well without wearing it at all. The sincerity of their grief is not questioned because they remain clad in every-day attire. If precedent is needed, it is pleasant to know that it already exists, and to realize the fact that scores of calm-browed, earnest-hearted nineteenth-century women have not needed mourning as a protection or a means of expression in the hour of affliction. Grief would seem to be a personal affair, sacred to the individual, needing no outward sign of its having taken the world into its confidence, and having thus cast something of a shade over the joy of living—said joy not being an inexhaustible mine in any community. Rather is the stock in perpetual need of increase.

The moral influence of mourning is even more to be explored than its physical effects. Gloomy garments, darkened rooms, all the subdued life of the house of mourning, depress the powers, lower vitality, and absorb an undue quantity of domestic ozone. Such unwise fashions tend to stultify the wonderfully recuperative powers of time and nature. Hugging grief to keep it warm is a poor business, and so is the worship of sorrow. Speed the day when it shall be considered unbecoming to wipe our eyes upon the public or to dust our neighbors' shelves with any personal woe! All that Diogenes asked of Alexander was that the king should stand out of his sunshine. And we all have a right to demand of society that it take its mourning out of humanity's sunshine.

THE CAUSE OF SLEEP.

M. BROWN-SÉQUARD, as will be seen by an abstract in Dr. Rabinovitch's report on physiology, published in this number of the Journal, combats the theory that attributes the induction of sleep to a change in the state of the intracranial circulation leading to cerebral anæmia. He rests this contention mainly on his having frequently observed a hyperæmic condition of the base of the brain, and especially of the medulla oblongata and the spinal cord, during sleep, and on the regular recurrence of sleep in certain animals that have had the cerebrum removed. In place of the theory of cerebral anæmia he sets up that of peripheral irritation—somewhere and of some sort—exercising an inhibitory action on mental activity, on the action of certain muscles, and perhaps to some extent on the circulation and respiration. As regards their proximate cause, he places both natural and hypnotic sleep on the same footing.

It is to be noted that he admits that contraction of the blood-vessels of the retina and of the cerebral lobes, implying anæmia of the brain, is one of the phenomena of incipient sleep, although he looks upon it—for what reason we are not told—as one of the details that “confirm the existence of irritations.” A diminished supply of blood to the brain may, therefore, have something to do with the induction of sleep, even in the light of the considerations brought forward by M. Brown-Séquard. Moreover, it is reasonable to assume that one

of his arguments—that of the regular recurrence of sleep in animals deprived of the cerebral hemispheres—proves too much for the theory of inhibition of mental activity, unless it can be shown that mental activity has its seat in some other organ than the brain. Besides, it may well be doubted whether the abolition of mental action is all that goes to make up sleep, even with the addition of more or less inhibition of the cardiac and pulmonary functions, or whether mental processes are altogether in abeyance during sleep, leaving dreams to be accounted for as proceeding from some other part of the economy than the head. In addition, we may ask what the periodically recurring peripheral irritation is, and where it is located, that normally starts the nocturnal inhibition that leads to sleep. Evidently “there are more things in heaven and earth than are dreamed of in our philosophy,” and M. Brown-Séquard, granting his demolition of the theory of cerebral anæmia, has not replaced it with one that is beyond cavil.

MINOR PARAGRAPHS.

THE SPREAD OF TUBERCULOSIS AND ACTINOMYCOSIS IN ANIMALS AND MAN.

THE “British Medical Journal” contains an analysis of a report of the Royal Agricultural Department for 1888, dealing largely with four diseases—tuberculosis, actinomycosis, anthrax, and rabies—which have a direct relation to preventive medicine and human pathology. The report refers to a lack of power to confiscate certain kinds of diseased cattle, and recommends that authority be given to seize, in fairs, in markets, and in transit, all animals that come under the denomination of “mincers” or “wasters”—so called because they are bought up by the beef-sausage makers and because they are in the last stage of emaciation from tuberculosis. The report gives the latest available information as to the production of actinomycosis in man: 1. The evidence that it is readily transmitted from the food-animals to man has not been adduced. 2. Animals have the disease mostly in the tongue, at points which have been abraded by certain kinds of fodder. 3. Barley is the fodder which makes these abrasions with special frequency; and is, also, most abundantly infested with the ray-fungus. 4. That barley can produce the disease in man seems to be shown by one case, quoted from Soltmann by the authors of the report above referred to. A boy, aged eleven years, accidentally swallowed an awn of barley, and an intrathoracic abscess resulted, in the pus of which the ray-fungus ultimately appeared. The awn also was discovered at the time of the first evacuation of pus. Professor Crookshank is the author of that part of the report which treats of the actinomycotic disease in animals and man. He has written one of the fullest and best accounts of the disease that have yet been published. His article is copiously illustrated with microscopic and other lithographs, and it covers nearly eighty pages in the volume, which contains in all 336 pages. The amount of space accorded to this subject is an evidence of the growing importance accorded to it.

THE HOT-AIR TREATMENT OF CONSUMPTION.

THE latest contribution on this subject is by Assistant Surgeon J. J. Kinyoun, of the Marine-Hospital Service (“Weekly Abstract of Sanitary Reports,” Sept. 6, 1889), who took patients that presented about the same physical signs, the diagnosis having been verified in each by examination of the

sputum. Each sitting lasted an hour, the temperature of the inspired air varying from 120° to 230° C., though that of the expired air was only between 65° and 80° C.; there was not more than one degree difference in the rectal temperature taken at the beginning and at the end of the sitting. Sometimes there was a decrease of from five to ten beats in the pulse, and rarely there was an increase by as much as twenty beats. The respiration was sometimes quickened, sometimes retarded, never more than five respirations; sometimes there was no change. There was slight improvement in the patients, but in all of them it seemed due to increased chest expansion. A test experiment was made with a tuberculous patient that inspired cold air; the rectal temperature, pulse, and respiration curves in the chart accompanying his history are closely comparable to those in the charts of the patients that used Weigert's apparatus, and, like them, he improved while indulging in the pulmonary gymnastics. In the last analysis of all the reported cases treated by this method, the beneficial results seem consequent upon the increased expansion of the lungs; and all the reporters agree that the air when it reaches the lungs is so moderately hot that at best the germicidal effect is limited to the bacilli in the bronchi.

THE NEW VOLUME OF THE "INDEX-CATALOGUE."

The tenth volume of this great work takes the vocabulary from "O" to "Pfütsch." It brings the number of author-titles of volumes to 54,298, and of pamphlets to 93,002, and the number of subject-titles of books to 107,419, and of journal articles to 336,772. It continues the work with the same scrupulous carefulness that has been apparent in all the preceding volumes. A noteworthy article is the one headed "Periodicals," with references also to "Bibliography" and its subheadings, to "Journals," and to "Journalism." It is a list of the periodicals more or less complete files of which are contained in the Library of the Surgeon-General's Office, and includes 211 pages. The exact titles are given, with their changes from time to time, the names of the editors, and the places and forms of publication. Such a list is of incalculable value, especially to those engaged in editorial work.

THE HUDSON DISPENSARY.

This institution, which was started four years ago, has recently issued its first "Announcement and Report," by which it appears that its physicians are called upon nearly five hundred times a month, a fact which, as the report states, "sufficiently attests the necessity to which it ministers." The dispensary is situated at No. 425 West Forty-second Street. A pleasant feature of its organization is the fact that the gentlemen of the attending medical staff constitute the board of managers also.

TYPHOID FEVER IN BROOKLYN.

The meetings of the Medical Society of the County of Kings will begin again on the evening of the 17th inst., with a report of the Section in Medicine. Typhoid fever has been set down as the leading subject for discussion at two or more of the early meetings. The subject of autumnal typhoid fever in Brooklyn has come up from time to time before the society, but has not hitherto been systematically debated.

THE STATE BOARD OF HEALTH ON CIGARETTES.

The board's analyst, Professor Willis G. Tucker, of the Albany Medical College, has lately rendered an exceedingly sensible report on cigarettes. He shows the utter fallacy and ab-

surdity of current allegations to the effect that the tobacco or the paper of which the best-known brands are made is adulterated with any poisonous or injurious substance whatever; but he justly alludes to the facility afforded by cigarettes of using too much tobacco and of inhaling the smoke, and deplors their unrestricted sale to mere boys.

ALOPECIA AREATA TRAUMATICA.

At the recent meeting of the Missouri State Medical Society, Dr. Dumesnil recounted a case of alopecia areata in which there was a history of traumatism. The patient, about a year before, at the age of fifteen years, was hit upon the head by a falling shingle, a small scalp wound being produced. This healed promptly, but about a month later the hair began to fall out in spots and has continued to do so until the alopecia threatens to become complete.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 10, 1889:

DISEASES.	Week ending Sept. 3.		Week ending Sept. 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.	112	19	53	7
Scarlet fever.	21	2	24	3
Cerebro-spinal meningitis	3	2	0	0
Measles.	21	1	7	1
Diphtheria.	66	22	62	12

The American Pædiatric Society will hold its annual meeting in Washington, at the Army Medical Museum Building, on the 20th and 21st inst., one afternoon session being held at the Johns Hopkins Hospital, Baltimore. Besides an address by the president, Dr. A. Jacobi, of New York, papers are announced as follows: "Notes on a Case of Ataxia in a Child of Ten Years," by Dr. A. D. Blackador, of Montreal; "A Study of some of the Bacteria found in the Dejecta of Infants afflicted with Summer Diarrhœa" (second communication), by Dr. W. D. Booker, of Baltimore; "Noisy Respiration," by Dr. Dillon Brown, of New York; "Prolapsus Recti due to a large Stone in the Bladder in a Girl Three Years Old," "Two Cases of Nystagmus associated with Choreatic Movements of the Head in Rhachitic Babies," "Septic Diphtheria with Unusual Sequelæ," and "Personal Prophylaxis in Diphtheria," by Dr. A. Caillé, of New York; "Subcutaneous Emphysema in Children," "The Necessity of Prolonged Rest after some Attacks of Diphtheria," and "Two Cases of Carpo-pedal Contraction," by Dr. Charles Warrington Earle, of Chicago; "The Treatment of Scarlet Fever and its Complications," by Dr. J. Henry Fruitnight, of New York; "Spurious Meningocœle" and "Double Emphyema," by Dr. Francis Huber, of New York; "Aneurysm in Early Life," by Dr. A. Jacobi, of New York; "A Contribution to the Summer Diarrhœas of Infancy," by Dr. John A. Jeffries, of Boston (by invitation); "Tuberculosis of the Testis in Childhood," by Dr. H. Koplik, of New York; "Cases of Spastic Paraplegia," by Dr. Thomas S. Latimer, of Baltimore; "Scarlet Fever," by Dr. I. N. Love, of St. Louis; "The Artificial Feeding of Infants," by Dr. Arthur V. Meigs, of Philadelphia; "A Case of Diaphragmatic Hernia, with Operation," and "The Apparent Physical Contraction involved in the Reintflation of a Collapsed Lung while an Opening remains in the Pleural Sac," by Dr. J. O'Dwyer, of New York; "A Case of Simple Muscular Atrophy of the Facio-scapulo-humeral Type" and "Cerebral Sclerosis

in Children," by Dr. William Osler, of Baltimore; "Diphtheria," by Dr. A. Seibert, of New York; and "Some Practical Points in the Diagnosis and Treatment of Malarial Disease in Children," by Dr. H. N. Vineberg, of New York. Papers of which the titles are not given are announced to be read by Dr. W. T. Northrup and Dr. J. L. Smith, of New York, and Dr. V. W. Vaughan, of Ann Arbor.

An Army Medical Board will be convened in New York on October 1st, for the examination of such persons as may be properly invited to present themselves before it as candidates for appointment in the Medical Corps of the army. Application for an invitation should be addressed to the Secretary of War, stating date and place of birth and place and State of permanent residence, accompanied by certificates, based on personal acquaintance, from at least two persons of repute, as to citizenship, character, and moral habits. Testimonials as to professional standing, from the professors of the medical college from which the applicant graduated, are also desirable. The candidate must be between twenty-one and twenty-eight years of age, and a graduate from a regular medical college, evidence of which, his diploma, must be submitted to the board. There are now nine vacancies in the grade of assistant surgeon. Further information regarding the examinations and their nature may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

The Medico-legal Society will hold its next meeting at the Hotel Buckingham, on Wednesday evening, the 18th inst. Dr. C. A. F. Lindorme, of Florida, will read a paper on "The Hygiene of Interments"; Dr. Joseph Jones, of New Orleans, will read a paper on "The Classification of the Varieties of Insanity"; and the president, Mr. Clark Bell, will give a *résumé* of a recent trip to Europe.

Change of Address.—Dr. R. R. Martino, Brooklyn, to No. 530 Macon Street.

Society Meetings for the Coming Week:

MONDAY, September 16th: New York Academy of Medicine (Section in Ophthalmology and Otolgy); Medico-chirurgical Society of German Physicians; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, September 17th: American Gynæcological Society (Boston—first day); American Association of Obstetricians and Gynæcologists (Cincinnati—first day); American Dermatological Association (Boston—first day); New York Academy of Medicine (Section in Theory and Practice of Medicine); Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburgh Medical Association; Connecticut River Valley Medical Association (Bellows Falls, Vt.); Baltimore Academy of Medicine.

WEDNESDAY, September 18th: Association of American Physicians (Washington—first day); American Gynæcological Society (second day); American Association of Obstetricians and Gynæcologists (second day); American Dermatological Association (second day); Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); Medical Society of the County of Allegany (quarterly), N. Y.; New Jersey Academy of Medicine (Newark).

THURSDAY, September 19th: Association of American Physicians (second day); American Gynæcological Society (third day); American Association of Obstetricians and Gynæcologists (third day); American Dermatological Association (third day); New York Academy of Medicine; New Bedford, Mass., Society for Medical Improvement.

FRIDAY, September 20th: Association of American Physicians

(third day); Chicago Gynæcological Society; Baltimore Clinical Society.

SATURDAY, September 21st: Clinical Society of the New York Post-graduate Medical School and Hospital.

OBITUARY NOTES.

David Tilden Brown, M. D., formerly of New York, died at his home in Batavia, Ill., on the 4th inst., in the sixty-seventh year of his age. The deceased, who was a graduate of the College of Physicians and Surgeons, was for many years the superintendent of the Bloomingdale Asylum. About fifteen years ago, on account of ill-health, he resigned his position and went abroad. On his return, he made his home in Batavia, where he devoted his declining years to the pursuit of agriculture. He is remembered by the New York profession as an alienist of high attainments and as a man of extraordinary nobility and gentleness of character—qualities that endeared him to those who had friends in Bloomingdale and to those of the inmates themselves who were not too demented to recognize them.

Henry J. Menninger, M. D., died at his home in Brooklyn, on the 8th inst. He was a native of Germany, but came to this country while young, and was educated in New York. He graduated in 1863 at the University Medical College. He at once entered the medical corps of the army and served until 1868. From 1865 to 1868 he was surgeon-in-chief to the Marine Hospital at Newbern, N. C. He left North Carolina about 1874 and settled in Brooklyn. He was active in politics and was chosen coroner, a position for which he was admirably fitted.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of May 11, 1889.

Dr. A. H. SMITH in the Chair.

The Therapeutic Value of Oxygen Inhalation, with Experiments on Animals under High Pressure.—Dr. W. G. THOMPSON, in a paper with this title, dealt with the question of the actual effects of an oxygen atmosphere under various pressures, from the standpoint of scientifically conducted experimentation, and exhibited his animals and apparatus used in this work. He alluded to the great variety of opinions now current as to the beneficial effects of breathing extra amounts of pure oxygen. Some regularly gave it when dealing with any one of a number of common symptoms or conditions, such as anæmia, dyspnoea, albuminuria, vital depression, etc., and quite commonly oxygen was administered without any definite aim. He should, therefore, aim to present a clearer estimate of the real value of the agent.

By causing the inhalation of oxygen at a pressure of fifteen additional pounds to the square inch the amount of oxygen which was carried in loose combination in the blood-plasma could be slightly increased possibly, but it had not appeared experimentally that an increased oxidation was thus caused, or that any measurable increase of the amount of oxygen so carried took place. Under ten atmospheres of pure oxygen something over three per cent. of the natural volume of oxygen in the plasma was taken up, but even here the effects were vague, and probably a person was not conscious of them, such various symptoms had been reported by different patients. The tem-

perature was not elevated. Very high pressures, and especially any sudden variations in pressure, up or down, caused convulsions, heart failure, or circulatory disturbances. The same could not be produced by common air under the same pressures. In other words, more air-pressure than oxygen-pressure could be withstood, perhaps because in the former case the vitiated air made its exit more readily. In either case the patient would suffer more or less from the retention of nitrogenous waste matters (perhaps having convulsions), since there was little gaseous diffusion possible in the lung when the atmospheric pressure was changed much; and the carbon dioxide itself did not escape from the deeper air-vesicles. Hence the blood did not take up oxygen, and the carbon dioxide and other waste products accumulated. As had been said, this process went on more rapidly under a high pressure of oxygen than under that of ordinary air. Finally, the high pressure caused an increased solution of carbon dioxide in the blood.

He would next consider the effects of the inhalation of oxygen under pressure where the respiration was already abnormal. The speaker here passed in review the various causes of dyspnoea, including neurotic dyspnoea. His experiments had shown that pure oxygen under pressure would relieve dyspnoea due to foul air, as common air under pressure would not. When in any way the respiratory passages were narrowed to below their normal caliber and dyspnoea resulted, both air and oxygen acted to relieve it, but he was convinced that if given under high pressures the result was impaired. Congestion of the lung from the same cause he had found to be greatly relieved by oxygen inhalations. Dyspnoea due to diminished lung space for aeration of the blood was also greatly relieved by oxygen, if under pressures between four and ten pounds, but was made worse by high pressures (such as of thirty pounds). His conclusion was that oxygen under moderate pressures helped certain forms of dyspnoea. A moderately increased pressure of common air would lower the temperature of animals suffering from septicæmia; he therefore was quite ready to believe that a moderate degree of extra pressure in oxygen given by inhalation was of real advantage.

Now, as to the general therapeutic uses of the agent. Its actual employment in this city had grown to very considerable proportions, from two hundred thousand to three hundred thousand gallons being consumed every year. Not only was it used largely in poisoning by gases, drowning accidents, and various forms of dyspnoea, but also in anæmia and other altered or impure states of the blood. He was convinced that in anæmia, chlorosis, and other such conditions oxygen had but slight advantages over fresh air under slight pressure. It invariably failed to relieve the symptoms of blood poisoning or to remove cyanosis. Subjective dyspnoea, however, was commonly relieved. In innumerable instances it had failed to give any improvement of condition in diphtheria. In a case of poisoning by illuminating gas where he had seen oxygen tried it had neither helped the cyanosis nor saved life. In his own experience he had found little encouragement for using it in affections of the circulation due to defective heart action. But with a diminished respiratory surface, such as occurred in pneumonia, or where the entrance of air was impeded, as in asthma accompanied by much bronchial secretion, he had got very good results; also where from any reason expansion of the thorax was poorly carried on or painful. Uræmic dyspnoea was often relieved; here was a prompt and easy means of aid in one of the worst forms of suffering known, although without effect on the outcome of the disease.

Dr. J. W. ROOSEVELT took various exceptions to the theoretical conclusions of the author's, and in particular doubted that in increased pressure there was any regularly present

advantage. As regarded the therapeutical value of the agent, he thought the active inhalations had much to do with the benefit resulting to the patient. In treating anæmia he had at different times tried iron alone, oxygen alone, and iron and oxygen together; the best results had come from the combination. He thought the mode of action which made this benefit possible might resemble that which came into play where diminution of lung surface was at the bottom of the trouble, and that in anæmia also the hæmoglobin might be not always or nearly saturated. Such must be the case whenever cyanosis was relieved by oxygen, as occasionally it was. It was rational to suppose that oxygen inhalations had a practical value in anæmia when we considered that there was a diminution in the amount of hæmoglobin, and that oxygen gas would increase the amount of oxygen carried into the circulation—as he believed it did—to an extent which was but slight, he would admit, and yet important in its results.

Dr. GEORGE L. PEABODY remarked that it was very difficult to determine the effect of a single remedial agent or agency in chronic diseases, and especially where it was only one of several remedies being used. If the disorder was one having a tendency toward recovery, the problem was still more difficult. The value of oxygen must be considered as vague and unsettled still. The history of its entrance into modern therapeutics was of itself suggestive of uncertainty. Substances rich in oxygen had once been given by the mouth with the expectation of oxygen being liberated in the stomach (where their only possible action could be that of a caustic) and so reaching the general economy. Next came the idea of giving oxygen by the lungs, under pressure, so as to cause the plasma to absorb extra amounts of it. The fundamental fact remained that hæmoglobin could be trusted to satisfy its affinity for oxygen in common air. The amount of hæmoglobin in the blood was therefore of far more importance to the tissues, provided the air-passages were not obstructed. From a clinical standpoint also he doubted that any aid worth mentioning was obtained from the use of oxygen, as such, in a vast majority of the cases in which it was now administered. The pulmonary gymnastics incidentally involved in the taking of oxygen explained to him largely any good results which might be noticed.

Where secretions were thrown out in such amount on the sides of the air-passages as to give the same condition in the lung as if the air inhaled were unduly attenuated (as in severe catarrhs, emphysema, pleurisy, or diphtheria), it might have a definite usefulness. In asphyxia from chlorine or illuminating gas its use might be considered; but he could testify that it had failed to give any aid in many cases of this sort where he had tried it. Finally, patients suffering from anæmia and chlorosis were likely to recover anyhow, both with and without the many remedies so constantly appealed to. He thought the aid to be had from oxygen in this result was unproved and physiologically improbable.

Dr. BEVERLEY ROBINSON differed decidedly with Dr. Peabody as to the utility of oxygen in the treatment of disease, having seen many veritable instances where absolute relief had followed its use. In anæmia, after trying vainly all the other remedies, he had met with unmistakable successes by using pure oxygen (and its purity was very important too). In the albuminuria of atrophic nephritis he had found oxygen inhalations of decided value, not in diminishing the amount of albumin, but in aiding the general nutrition. Whatever else it might or might not do, it helped digestion and assimilation, and certainly it had a very wide utility here. In phthisis it was good practice to use it, not only because it forced the patient to expand his lungs, but also because it acted as an antiseptic agent—did no harm, and might do some good; and finally it

improved the nutrition—always a good thing to accomplish. Oxygen should therefore be added to whatever other agencies we could bring to bear. Where we could not send phthisical patients out of the city, oxygen should be given. In view of certain clinical facts, it was rational to suppose that it might act as a stimulant to the formation of hæmoglobin where this was deficient. Purely experimental results in the use of oxygen were not the absolute tests for medical men; the effects on patients were. It was unfortunate that oxygen was expensive still, and that we were not always sure of its being pure. It was often necessary to give it for a long period of time. Finally, the old writers were not far from the truth in their statement that “quiet, peace, happiness, and euthanasia” could be secured by the use of oxygen at the end of phthisis or cardiac diseases.

Dr. W. MENDELSON said he must take sides clinically with Dr. Peabody. In anæmia occurring in old men he had seen some remarkable results follow the inhalation of ten gallons of oxygen every day, but he believed that here the exercise involved, and the influence on the mind, had much to do with the benefits resulting. He had frequently seen dyspnoea relieved, and that too where the patient presently died; to relieve the distress of the last moments was certainly a good object to accomplish.

The CHAIRMAN remarked that the developments of the evening's discussion showed him that the results of his own work of twenty years ago still held good. There was one fact not yet touched on, in connection with the fact that under ordinary circumstances the blood was not entirely saturated with oxygen, namely, that the point of absolute saturation corresponded in the working economy of the body with the extreme of physiological demand for oxygen, such as might arise in a boat-race. This maximum demand was not made when quiet respiration was going on under an ordinary degree of bodily activity. So we had a rather wide margin between ordinary and extreme oxygenation of the blood and the conditions making either necessary; that is, we had a capacity for appropriating an additional supply of oxygen whenever the tissues made the demand.

If a pathological condition presented where enough oxygen was not being supplied to the blood, but would be if there was more expansion of the chest and a greater rapidity of respiration, and where the patient was unable to do the required amount of breathing himself, there oxygen gas might be supplied with benefit. He would thus also define the limit of the therapeutic value of oxygen, including within it, of course, cases where the access of air to the lung was impeded by obstructed passages. From an entirely clinical standpoint he had seen the most striking benefit follow the administration of oxygen gas to patients having suffocative bronchitis or poisoned by opium.

As regarded opium narcosis, he had once supposed that in that condition, owing to the slowing of respiration, not enough oxygen could be drawn into the lung to satisfy the hæmoglobin of the blood, so that the condition was largely one of poisoning from lack of oxygen. But subsequently he had fallen on cases of opium poisoning where the rate and depth of respiration were unchanged and yet the narcosis was profound, and where, nevertheless, the administration of oxygen had given prompt relief. He had seen eight or nine such instances. He must suppose that the blood did not here find itself able to take up oxygen from ordinary air with anything like the case that it could from an atmosphere of pure oxygen.

In considering the questions connected with inhalation of oxygen under pressure, there were many factors to be regarded. The sudden lowering of atmospheric pressure at the end of each inhalation of a gas under pressure explained many of the effects; we then had either changes in the distribution of the blood in

the lung and elsewhere, or a retention of certain gases in the blood.

Dr. THOMPSON objected to the chairman's inference as to partial and complete saturation of the blood with oxygen under ordinary and under extraordinary bodily exertion. Blood taken from an animal when in a state of repose was found to be saturated with oxygen; it would take up no more if placed in a chamber of pure oxygen.

In the case of the boat's crew in a boat-race, there we had an increase of respiration and heart-action and body metabolism simultaneously, but it had not been shown that the absorption of oxygen by the blood was increased in the proportions of volumes; the quickening of the circulation easily provided for an increased supply of oxygen to the tissues.

The CHAIRMAN added that in his experiments made years ago he had kept animals in a pure oxygen atmosphere for periods of four days at a time, and on taking them out had found no changes either in weight, appetite, circulation, or general nervous state which could point to any differences in the vital effects of pure oxygen and those of ordinary air.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN ORTHOPÆDIC SURGERY.

Meeting of April 19, 1889.

Dr. A. B. JUDSON in the Chair.

Psoas Abscess following Pott's Disease.—Dr. V. P. GIBNEY presented a patient, a girl fourteen years old, on whom he had operated for double psoas abscess following Pott's disease of nine years' duration. The carious vertebræ were evidently consolidated when, in last November, large abscesses were discovered, and the patient was brought under treatment. On the right side the tumor was incised in Scarpa's space, a long forceps was passed under Poupart's ligament through the iliac fossa and into the lumbar region, and a counter-opening was made on the forceps along the border of the erector spinæ muscle. Pieces of bone escaped with the pus. The cavity was curetted and the bone scraped gently. With antiseptic dressing and injections of carbolic-acid solution (1 to 40), and a one-per-cent. creolin solution, both wounds closed in a month. The left side was then operated on by simple incision and drainage. Large quantities of bone detritus were scooped out with the finger. A sinus still remained on the left side, from which a piece of bone was occasionally discharged.

The patient was exhibited as showing the advantage of Owen's method over attacking simply the sac and not the whole suppurating tract. The speaker believed it would have been better to treat both sides according to Owen's method; but in general he doubted the propriety of doing this operation during exfoliation, which would render a subsequent operation necessary. It was also important that the patient should be in pretty good condition.

Dr. R. H. SAYRE had used injections of peroxide of hydrogen in large abscess cavities, with better results than he had seen from carbolic, bichloride, or boro-salicylic solutions.

Dr. GIBNEY said a similar experience had been reported by Dr. Vance.

The CHAIRMAN thought an objection to operating in these cases was that for the natural incarceration of the pus and detritus we substituted an artificial opening, requiring antiseptics to hasten cicatrization. If these accumulations were doing no harm, it was better to leave them for removal by natural processes; and, if in due time they perforated the skin, the general and local conditions were ready to promote evacuation and speedy cicatrization.

Dr. J. A. WYETH said that an operation was indicated when large abscesses were situated on exposed parts of the body, and liable to injury and subsequent septic complications. He recalled the case of a woman who, thirteen years after being considered cured of Pott's disease, slipped and fell on a large gluteal abscess. The accident speedily gave rise to symptoms of sepsis with high febrile movements, and several operations under ether were necessary for the removal of bone detritus, which was spread through the gluteal muscles. The patient ran great risks, but finally recovered. He had had other similar cases. A psoas abscess behind the peritonæum causing no trouble should be left alone, but one pointing in the thigh, back, or other exposed situation should be operated upon, as the danger of the operation was almost nil.

Dr. N. M. SHAFFER was reminded of the history of a patient with Pott's disease and an abscess occupying the gluteal region and the anterior part of the thigh. The child fell, striking the gluteal tumor. The immediate symptoms were alarming, but, without the adoption of any special treatment, the accident resulted in the entire disappearance of the abscess. If there were any means of determining with certainty when an abscess from Pott's disease contained bony detritus, it would be preferable to operate; but while spondylitis was still active it was better to postpone an operation as long as possible. He recalled a case of Pott's disease and hip-joint disease, which he had been watching for several years, where spicula of bone as large as the end of the finger were expelled in a sudden and violent attack of coughing. The bone came undoubtedly from the cancellous structure of the sixth or seventh cervical vertebra. The patient was relieved at once, and physical examination showed that very little trouble had been caused by the entrance of the bone through the lung tissue into the bronchial tubes.

Knock-knee; Club-foot; Deformity following Hip Disease.—In a paper on "Osteotomy" Dr. WYETH related two cases in which he had corrected in-knee and out-knee in the same patient by double osteotomies. The patients were three and a half and four years old, respectively. Both were discharged entirely relieved. Strict antisepsis was followed and the limbs were dressed in plaster of Paris in a position of over-correction. He preferred MacCormac's incision on the outer side and just above the capsule, since the saphena vein and anastomotica magna artery were not endangered, as in MacEwen's operation on the inner aspect of the thigh. He also briefly related three cases in which patients, aged thirteen, eighteen, and twenty-six years, respectively, had been relieved of the deformity following hip disease and restored to good power of locomotion by operations on the femur. The method pursued was by Gant's osteotomy below the lesser trochanter. The after-treatment had been with Buck's extension and Hamilton's long splint. In one of the patients there had been double hip disease. Two months after the left femur had been operated on, the right one was operated on; and four months after the date of the first operation the patient was discharged cured, with good power of locomotion.

He also related two cases in which congenital talipes equinovarus of the most exaggerated type had been corrected with good recovery, and with the feet in excellent shape. Tenotomy of the tendo Achillis, tibialis anticus, and tibialis posticus was first done—the first two subcutaneously, and the last by open incision, the tendon being dissociated from that of the flexor digitorum and divided on an aneurysm needle. The operation was completed by an osteotomy as follows: An incision was made on the outer side of the dorsum, exactly over the point of greatest convexity; the tissues were lifted from the tarsus with an elevator, and a conical section, including portions of the calcaneum, astragalus, cuboid, and scaphoid, was removed. The

rule should be to remove all parts which prevented replacement of the foot. The foot being brought into its normal position by eversion and rotation, aseptic dressing and plaster of Paris completed the treatment, the result of which had been excellent.

Dr. GIBNEY said that the anatomical point raised in the paper concerning supracondyloid osteotomies certainly commended the operation of MacCormac. Although in-knee and out-knee in the same subject were rare, he had seen many instances of multiple deformity among Bohemians and Italians. He had recently done a sextuple osteotomy at one sitting, and was treating an ununited fracture of the right tibia, all the others having united.

The CHAIRMAN thought that in congenital talipes the reduction of the deformity by mechanical or operative means was easy; but that was a small part of the necessary treatment. So long as the patient was growing, he must be under occasional observation, and, if necessary, made to wear for a few months, at intervals of two or three years, a brace fitted to the needs at the time, in order to prevent threatened relapses. In the deformities of the knee there was a special reason for preferring mechanical means of correction, because there was the advantage of the leverage found in the tibia and femur, while in club-foot there was only the tibia on one side and, on the other, the short and many-jointed foot.

Dr. H. L. TAYLOR said that late observation of the results of treatment was of special importance in orthopædic practice. If surgeons and orthopædiste would report the condition of patients five, ten, or more years after their dismissal, a more intelligent choice of methods could be made.

Dr. SHAFFER said that his experience with mechanical appliances in the treatment of talipes had led him to think that many severe operations were performed on patients who could be better treated by traction. He recalled a case in which there was confirmed equino-varus, although three or four tenotomies and five or six osteotomies had been performed. He had applied the "external lateral stretcher," and the patient was now walking on the flat of the foot. He referred to the interesting question whether osteotomy was advisable when there was some motion in the hip joint. In a patient on whom Dr. W. T. Bull had operated, some motion was found after etherization. The reduction of the deformity by osteotomy had been followed by persistent traction with the hip-splint, and good position and slight motion had both been retained.

Dr. GIBNEY believed that the presence of motion was not a contra-indication to the operation. About six months before, he had performed Gant's operation for a right-angled deformity. The flexion had been reduced from 90° to 15°, and the limb was retained at 15° of flexion by a traction apparatus for three or four months, when it was removed and the patient allowed to walk about with a high shoe. After about six weeks the flexion had increased to 25° or 30°. Traction was reapplied, and the limb was again being brought down. He recognized the necessity of protective apparatus in order to retain or increase the result secured by operation.

Dr. WYETH had operated in several cases where there was motion, and had refused to do it in others. In a patient whom he had seen with Dr. L. A. Sayre there had been considerable motion, and he had done a tenotomy for temporary relief, postponing osteotomy.

Dr. R. H. SAYRE said that, in the case referred to, improvement had followed the tenotomy, but an apparatus was necessary to prevent a return of the deformity. He thought that in some cases sufficient reduction of the flexion might be brought about by section of the psoas and iliacus muscles. This had been done in one case in which, although the operation was

subcutaneous, injury of the vessels had been avoided. By open section this danger would be avoided.

Dr. J. D. WILSON expressed surprise at the frequent mention of elevations of temperature in the history of Dr. Wyeth's cases, which had been treated antiseptically. Had our teachings been too absolute, or did such temperatures really indicate imperfect antiseptics?

Dr. WYETH replied that "the temperature of reaction," occasionally as high as 102°, occurred in the first twenty-four hours, but it usually fell to normal in forty-eight hours. Traumatism, ether, shock, and the use of sublimate combined to produce this reaction, which might still be called an aseptic temperature.

He closed the discussion by saying that the simplicity and safety of osteotomy had been shown by the cases he had reported. While no case of equino-varus treated during the first two years of life should require tarsotomy, neglected cases would present themselves where nothing but tarsotomy would give relief. The operation might give considerable foreshortening to the foot, but one could certainly correct the deformity, however great, by removing enough bone; and, if this was properly done, he believed it to be real conservatism.

JEFFERSON COUNTY, ALABAMA, MEDICAL SOCIETY.

Meeting held at Birmingham, August, 1889.

W. E. B. DAVIS, M. D., in the Chair.

Ileo-colostomy in which Davis's Catgut Mats were used for Approximation.—Dr. JOHN D. S. DAVIS reported the history of a case.

On July 16, 1889, at 8 P. M., his brother, Dr. W. E. B. Davis, had been called by Dr. Charles and Dr. C. T. Drennen to operate on W. G., a negro, aged forty-two years, a furnace-tender, for intestinal obstruction. He had found the patient *in extremis*; temperature 101° F., pulse 135. He had made a diagnosis of perityphlitic abscess, suppurative peritonitis, and faecal obstruction in the ileum in the region of the ileo-cæcal valve, and had expressed the opinion that the man would die in a few hours, regardless of any operation. He had opened the abdomen from the symphysis to midway between the umbilicus and the ensiform appendix, and had found a perityphlitic abscess; general peritonitis, due to rupture of the abscess sac; compound flexion of the ileum bound by strong adhesions in the region of the ileo-cæcal valve; faecal impaction, accompanied by great distension of the intestine above the seat of obstruction. The abdominal cavity and abscess sac were thoroughly cleansed by irrigations of hot water. The ileum was opened near the point of obstruction and emptied of nearly one gallon of impacted faeces, liquids, etc. A second opening was made at the junction of the jejunum with the ileum to allow the escape of a large quantity of gas in the upper part of the bowel. These openings were closed by Czerny-Lembert sutures. At this point in the operation the patient had seemed to be holding out well; and, to avoid the necessity of resorting to the formation of an artificial anus, he had been requested to do an anastomosis by means of his approximation catgut mats, with the view of establishing the continuity of the intestines. The ileum above the seat of obstruction was brought in communication with the ascending colon below the point of obstruction by making one incision an inch and a half in length in both intestines at a point opposite the mesenteric attachments, and the visceral wounds were carefully united by means of approximation catgut mats. A catgut mat, to which were fastened four braided silk threads, was introduced through each opening into the intestines. The lateral sutures were passed through the margins of the wound

to prevent ectropion of the sides of the incisions. After the mats and sutures were in place, the wounds were brought in contact and the four sutures tied, which accurately coaptated the serous surfaces of both bowels over an area corresponding to the size of the mats. This procedure occupied only three minutes. No outside safety sutures were applied, as the approximation was perfect and the coaptation sutures were well protected between the approximated serous surfaces.

A glass drainage-tube was fixed in the lower portion of the wound and the peritonæum closed by a continuous catgut suture. The abdominal wall was closed by interrupted silk sutures and an antiseptic dressing applied. The time occupied in the whole operation was sixty-five minutes. The patient rallied well, was comfortable, and gave favorable signs of recovery for fourteen hours. Three hours after the operation had been completed the patient had a small faecal operation, when a large quantity of gas had passed *per rectum*.

The temperature, ten hours after the operation, was 100° F., and the pulse 120. Fourteen hours after the operation, while unattended by the nurse, the patient attempted to get up by himself and died suddenly from exhaustion.

Necropsy Two Hours after Death.—Abdominal wound united. Omentum adherent to the wound at the points of operation and incisions. The anastomosis was perfect and the new opening was sufficiently large to nearly equal in size the lumen of the ileum. Adhesions between the two serous surfaces of the bowel were firm, and extended a little beyond the line of approximation, as could be seen from the specimen removed at the autopsy.

While this had been a desperate case for any operative interference, the speaker was sure that the patient's life had been comfortably prolonged ten or twelve hours by the opening, emptying, and washing out the abdominal cavity.

He expressed his regrets that Dr. Drennen had not seen the patient early enough to be able to give him the benefit of the anastomosis at a time more favorable to recovery. Even at the late hour in his illness at which the operation had been performed, he did not think a better, safer, or easier means for restoring the intestinal continuity could have been had. The specimen which the speaker showed clearly illustrated the possibility of the future popularity of intestinal anastomosis.

He was not at all doubtful of the great advantage it possessed, when obstruction existed, over the tedious, difficult, and often fatal operation of circular enterorrhaphy. The mechanical principle was clear, the method was practicable, and the application had been clearly demonstrated. Resections with circular enterorrhaphy, lateral apposition with suturing, and plastic operations, though of little value, had had their day, the objection to them being a dangerous consumption of time, long exposure to infection, frequent leakage, and abscesses. While the application of the principle to man had yet been limited, the method offered advantages many times as great as those of the old operations as to mortality, and could be done in one sixth of the time.

Intestinal anastomosis undoubtedly appealed to the practical surgeon, and would find greater favor every day; and it was no jejune proposition that its appeal to favor rested on the technique of the operative procedure rather than upon the basis of inductive logic that had that mixture of a small amount of truth with a large amount of error which gave so many popular procedures their temporary plausibility and mischievous tendency.

The speaker gave a description of how to make his catgut mats,* and demonstrated on the dog how easily they could be

* "Virginia Medical Monthly," May, 1889, pp. 166 and 167; "Alabama Medical and Surgical Age," May, 1889.

applied. He exhibited a dog weighing twenty-five pounds on which he had done three laparotomies—one for omental grafting and two for anastomosis. He also stated that the catgut mats, if not already on hand, could be made of any desirable size by the most ignorant nurse in an hour.

The CHAIRMAN agreed with the author of the paper that his catgut mats were superior to Senn's decalcified bone plates and Abbe's catgut rings: He thought the experimentations of the author had proved conclusively that the mats possessed all the advantages stated for them. Referring to the case reported, he said that this was the second case in which he had opened the abdomen three days after symptoms of rupture of a perityphlitic abscess with general suppurative peritonitis. While these had been hopeless cases, the operation had given great relief in both instances, and certainly had not shortened the lives of the patients. He had operated in both cases in order to give the patient the benefit of a complete diagnosis, and with the hope that he might find a condition less serious than he had diagnosticated. He said that the lesson taught in the report of these late operations, with fatal results, was the importance of early diagnosis and prompt operative procedure. He thought if the abdomen could be opened within the first twenty-four hours the chances for recovery were favorable. He emphasized the importance of a thorough study of perityphlitis by the general practitioner, that the surgeon might be consulted in time to give the patient the benefit of early operations. He favored opening the abdomen, even after the third day, in cases of suppurative peritonitis, in order to wash out the cavity and to afford the patient relief; and, too, from the fact that a diagnosis could be made, and perhaps a condition found capable of relief, whether the hypodermic needle found pus or not.

Dr. A. L. MONROE, of Louisville, said he thought Dr. Davis's catgut mats the best device he had seen for intestinal anastomosis.

Dr. J. C. ABERNATHY asked Dr. Davis if he used drainage in such cases as he had reported.

Dr. DAVIS said, as to drainage after intestinal anastomosis, that he was guided as in all other abdominal operations. He never put a drainage-tube in when he was able to cleanse the abdominal cavity thoroughly. When conditions existed with the abdominal viscera that rendered drainage necessary, he put in a blind glass drainage-tube, with numerous lateral perforations to allow of the escape of any collected abdominal fluids. Through it the abdominal cavity might be flushed with sterilized water, and the water withdrawn by gravity without danger of getting air into the cavity. In general suppurative peritonitis of three days' duration the serous surfaces of the bowel and peritoneal cavity were largely deprived of the endothelial covering, and the washing out of the abdominal cavity was followed by a copious exudation of plastic lymph, which, like a cement substance, mechanically agglutinated the numerous coaptated folds of the bowel throughout. These multiple adhesions, which bound the bowel in so many flexions, could possibly be prevented by the early administration of cathartics, which tended to relieve the paresis and increase the peristaltic movements. And in cases where he thought it impossible, after operation, to restore the peristaltic movement sufficiently to prevent adhesions, he would not hesitate to operate, that the sufferer might have the benefit of the doubt, and also for the purpose of rendering his dying hours comfortable.

Ligatures.—Dr. A. T. HENLEY presented two double silk ligatures with the following history: Mrs. T. had suffered for two or three years with ovarian disease. Dr. T. Gaillard Thomas had performed a laparotomy on her on October 10, 1888, removing both ovaries and tubes. The recovery had been

uneventful, except that two fistulæ had formed in the abdominal wound and had continued to discharge pus of a healthy character. She had returned to Birmingham on December 1st. During the spring months she had suffered considerable pain in both inguinal regions, with very marked tenderness. Probes could not be introduced more than an inch. In May this pain had been very severe. There had been no perceptible swelling.

About the 1st of July a portion of the ligature had made its appearance at the opening of the lower fistula, but it could not be removed without more force than had been thought advisable to use. On the 23d of July both ligatures had been discharged upon the dressing, and the fistulæ both closed in a few days, leaving her without an ache or pain of any kind and apparently in perfect health. One of the ligatures was in perfect condition; the other had been partially absorbed. These ligatures came from the pedicles. In a letter from Dr. Thomas, written in May, he had stated that the pedicle ligatures were causing the trouble, and predicted that they would be discharged.

Dr. J. D. S. DAVIS said that he believed the want of success with abdominal silk ligatures was due to insufficient sterilization; that silk thread contained more or less oil from the hands of the workmen, and must therefore be thoroughly freed from all fatty matter before it was placed in the antiseptic sublimate solution, because watery solutions would not act on the thread if the oil was present. He kept all ligatures in chloroform or ether for twelve hours before using them; then shook them well, and immersed them in ninety-five-per-cent. alcohol, where they were left for twelve hours; and then transferred them, while still moist, to a 1-to-1,000 watery sublimate solution, in which they might be allowed to remain for twenty-four hours. After taking them from the bichloride solution, he allowed them to dry, and then rolled them in sterilized linen compresses and placed them in a suitable glass bottle, or ninety-five-per-cent. alcohol, to keep. He maintained that the main object was to free the silk from all fat and oil before sterilization, and that when ligatures for the abdominal cavity were thus rendered aseptic they were not apt to produce suppuration or secondary abscesses; otherwise, primary abscesses would necessarily be the result.

The CHAIRMAN considered the silk ligatures a frequent cause of pelvic abscess. He reported a case in which he had removed the ovaries and tubes nine months before, and stated that the patient had recently had an abscess due to the ligatures which had opened into the vagina. He also referred to a case operated on three weeks ago, in which the ligatures had caused an abscess which had opened through the rectum, after which the patient had done well. While he recognized that silk was more liable to be followed by this complication, yet he considered it decidedly the safest ligature to use. He agreed with Dr. Goodell that catgut would soon bring one to grief in the loss of a patient from hæmorrhage.

Reports on the Progress of Medicine.

PHYSIOLOGY.

By LOUISE G. RABINOVITCH, M. D.

The Quantitative and Qualitative Interchanges of Nitrogen and Phosphorus in the Body, under the Influence of the Mind.—A. E. Steherbak ("Vratch," No. 4, 1889) has experimented on his own person, and has obtained the following results: Under the influence of active mental work there is a decreased assimilation and increased elimination of nitrogen and phosphorus, the source of elimination being

the same ingredients of the tissues. With regard to the variation of the qualitative changes, the energy of the process of oxidation is below normal; this was learned from the fact of the occurrence of an increased amount of deficiently oxygenated products in the urine. The earthy phosphates in the urine predominate over the alkaline.

From a series of comparative analyses with respect to the amount of phosphorus contained in the diurnal and nocturnal urine, the results were unsatisfactory. The increase of eliminated phosphorus in the diurnal urine is neither much marked nor constant; the difference in the alkaline and earthy phosphates in the urine is more conspicuous; the latter phosphates, as a rule, preponderate in the daytime.

The diverging results of different authors who investigated the variation of the interchanges of phosphorus in the tissues under the influence of mental work is to be ascribed, according to the author, to the fact that the final results of these interchanges, in connection with mental work, must vary with: 1. The relation of the amount of the combinations of phosphorus undergoing decomposition in the brain to that of phosphoric acid sent to the brain. 2. The length of time during which the brain rests and is enabled to regain its loss.

On the Relation of the Spleen to the Hæmoglobin in the Blood.—Schwartz pointed out recently in his thesis the new property of protoplasm and the splenic cells, which consists in first destroying and subsequently regenerating hæmoglobin, regeneration being in proportion greater than the quantity previously destroyed.

This led Professor Ph. Krugner ("Vratch," No. 3, 1889) to study the comparative analysis of arterial blood and that of the splenic vein with respect to the contained hæmoglobin and their solid extracts. The hæmoglobin was determined by Hüfner's spectrophotometer. In four cats the blood from the splenic vein contained on an average 9.52 per cent. of hæmoglobin and 19.01 per cent. of solid extracts, while blood from the carotid artery of the same animals contained hæmoglobin 9.28 per cent., and solid extracts 18.73 per cent.

The higher per cent. of hæmoglobin and solid extracts in the blood of the splenic vein can not depend, according to the author, upon the absorption of liquid from the same by the lymph vessels, since they are scarce in the spleen, and the lymph in the spleen is richer in solid extracts than that from any other region of the body. The inference is that this increase of hæmoglobin and solid extracts in the splenic vein is brought about by their generation in the spleen. According to Koulchitsky, the histological structure of the spleen permits of such supposition.

The Influence of Massage of the Abdomen on Blood-pressure and Respiration.—To decide the question as to the mode of distribution of the blood in the cephalic and podalic extremities of the body under the influence of massage of the abdomen, R. O. Glovetsky ("Vratch," No. 3, 1889) has used the plathysmograph for the purpose, and found the size of the upper and lower extremities to diminish during massage; after suspension of the same the size returns to the normal; the upper extremities, however, frequently exhibit gradual increase in size, that of the lower not uncommonly being decreased at the same time. From experiments on men and animals, the blood-pressure is seen to be increased during and some time after the massage; in animals this is the case even after section of the splanchnic and sympathetic nerves. By means of the manometer the intracranial blood-pressure was shown to be increased too.

The number of cardiac pulsations first increases during the process of massage, but becomes gradually slower, and at the same time fuller toward the end of the process, and especially is that true of the subsequent period. No satisfactory results were obtained as regards the respiration in men; in animals there was a decided increase of the respiratory activity. In cases of asphyxia the use of massage efficaciously influenced the cardiac action.

Researches on the Pathology of Diabetes (Presented by Brown-Séquard).—M. S. Arthaud and M. L. Bettle ("Comp. rend. de l'acad. des sci.," No. 4, 1889) conclude from their recent experiments that:

1. An artificial double and simultaneous neuritis of both vagi is followed by death of the animal within a few days, the symptoms being analogous to those characterizing section of the same nerves. For experimental purposes death can be delayed by gradual interstitial injections into the nerves of inert powder or other irritating substances.

Following the first injection there is polyuria with slight albuminuria; after the second, gastric symptoms supervene (vomiting), accompanied by extreme thirst and emaciation, which is explained by the inanition. The amount of urea excreted is diminished, and sugar appears (0.14 grammes of sugar to the animal kilogramme in the twenty-four hours). Death ensues about the second month after the second operation; the anatomical alterations consist especially in congestive and inflammatory lesions of the lungs and the abdominal viscera.

2. One nerve being artificially injured, the degree of resistance to death is greatly in proportion to the intensity of the neuritis. In both the dog and the rabbit emaciation sets in with polyuria and azoturia in the beginning, and an intermittent glycosuria persists during the entire period of experimentation. The post-mortem shows the existence of renal, hepatic, cardiac, and intestinal lesions, the lungs being almost normal, the kidneys are congested, and histologically there is a sclerosis of arterial origin of different degrees. There is hepatic congestion with a granular condition of the hepatic cells; the heart is the seat of interstitial endocarditis; the mucous lining of the alimentary tract is the seat of a peculiar degeneration, resembling that described by Cautain as being found in diabetes.

3. To decide whether these phenomena were brought about by centripetal or centrifugal action of the nerve, the central end of the vagus was irritated after resection; the operation was followed by polyuria and glycosuria, but these symptoms soon disappeared, and within a few weeks the animal recovered perfectly.

4. Peripheral irritation of the vagus was constantly followed by gradual aggravation of symptoms, and death within from four to six months.

5. The inference is that centrifugal irritation of the vagus in animals is apt to induce the different clinical varieties of diabetes as met with in men, according to the individual predisposition.

Analysis permits of the statement that this artificial disease differs in no respect from the varieties of spontaneous diabetes in men, for which the author adopts the neuropathic theory.

The Mechanism of Death in Rabbits subjected to Transfusion of Dog's Blood (Presented by M. Charcot).—Like Héricourt and Richez, G. Hayem ("Comp. rend. de l'acad. des sci.," No. 8, 1889) has observed the fact of the quick succumbance of rabbits when subject to transfusion of dog's blood, whether the entire defibrinated blood or serum is used. The order of toxicity is, beginning with the highest, first defibrinated, then entire blood, and last serum; 5 to 7 c. c. of defibrinated blood to the animal kilogramme suffice to bring about a quick death. In one or two minutes after transfusion, symptoms of asphyxia develop; dyspnoea, followed by cyanosis, and terminal asphyxic convulsions, with dilatation of the pupils, occurring within the following five to fifteen minutes. In case of an insufficient dose, the symptoms are simply those of dyspnoea. After a while some of the animals pass red urine, containing red blood-cells and dissolved hæmoglobin; others are affected by polyuria, the urine containing for one or two days biliary pigments and urobilin, or urobilin alone. Post-mortem immediately after death reveals, in all cases, distension of the right heart cavities with coagulated blood, which extends into the pulmonary arteries and their first large branches. In some cases thrombi are found in the caava or portal veins. The lungs, being bloodless, are sometimes the seat of infarctions, and the left heart is empty.

The constancy of these results leads to the conclusion that the death by asphyxia here is due to arrest of the right heart circulation. The animals die as if their pulmonary arteries had been ligated. As observed previously by Landois, the pathology of the process is explained by the solubility of the red cells of the rabbit in the blood or serum of the dog; microscopic examinations prove this to be the fact; the dissolved hæmoglobin is in direct proportion to the amount of transfused blood. Allusion is made to the possibility of the red cells containing impure albuminoids capable of coagulating circulating blood.

Two forms of coagulation might be produced, according to the specimen of blood used; it might be either embolic or thrombotic, the latter causing instantaneous death. Whatever form of coagulation results, it is stated, it is possibly due to the contact of two living organisms closely resembling each other, and this is of interest in the study of the pathology of thrombus and embolism formation.

On the Quantity and the Activity of Reduction of Oxyhæmoglobin in Diabetic Patients.—Dr. A. Henocque ("Arch. de phys. norm. et pathol.," 1, 2, 1889) has kept under observation ten diabetic patients for several years, and made eighty analyses of the urine and seventy-two of the blood. He has found it impossible to establish a line of relation between the amount of oxyhæmoglobin and the degree of glycosuria; the process seemed too complete to rely upon the daily examinations of the amount of sugar and the corresponding activity of hæmoglobin reduction.

After the hourly examinations for three consecutive days of the correlation of these two processes, the conclusion arrived at was that in most of the cases the maximum of sugar production occurred between 10 A. M. and 1 P. M., or else 4, 6, or 8 P. M. The activity of reduction is augmented at the same time. In the evening, and particularly during the night, the glycosuria is diminished, and is accompanied by a corresponding decrease of the activity of oxyhæmoglobin reduction. The author expects to show in future the concomitant relation of the excretion of urea, glucose, and phosphoric acid.

Clinical and Experimental Researches on the Decussation of the Conductors of Voluntary Movements.—The current knowledge of cerebral physiology implies that both physiologists and clinicians accept the view that a transverse section through the entire width of the base of one hemisphere should be followed by paralysis, for the reason of interruption of communication between the muscles and the seat of volition, the arguments for this being: 1. The experiments of Fritsch and Hitzig, Ferrier, and others. 2. The clinical facts of crossed paralyzes following unilateral cerebral lesions, or direct paralyzes following unilateral spinal lesions. 3. The facts of descending degenerations of the motor tracts commencing at the base of the brain and descending through the cord. Brown-Séguard ("Arch. de phys. norm. et pathol.," Nos. 1-2, 1889) opposes the localization theory on the ground of clinical observation and his personal experiments.

Stimulation of different parts of one half of the cerebral base was followed in most of his cases by movements of the limbs on the corresponding side. He denies decidedly the localization theory and substitutes for it a theory of reflex action.

In opposition to the cases which encourage physicians to favor the localization theory, the author reports cases being in perfect contradiction with those generally known. With reference to secondary degenerations, the author expects to show in future that such lesions may exist without exhibiting any pathological phenomena, and so prove the incorrectness of spinal localization. The cases collected by M. Brown-Séguard support his views decidedly, and enable him, without stating the details here, to formulate in general that these cases prove the possibility of the existence of a lesion, or of destruction of the medulla limited to its motor portion, or of this and its neighboring parts, without a resulting paralysis of the limbs. On the other hand, paralyzes were observed to follow lesions of parts that are not considered as motor areas, the motor areas having been unaffected.

Though, it is stated, observations have been made that confirm the current theory of cerebral and spinal localization, and the crossed function of each hemisphere, yet there are evidences that leave no doubt as to the fact that injuries of one side of either the areas considered as motor, or of those that are not recognized as such, might be followed by palsy on the corresponding side of the body. The cases collected are: 1. Dr. A. T. H. Waters, "Trans. of the Medico-chirurg. Soc.," London, vol. xlv, 1863, p. 115. 2. Dr. Dompeling, "Nederlandsch Arch. voor Genees- en Naturkunde," vol. iv, 1869, pp. 179-190. 3. Dr. S. O. Habershon, "Guy's Hospital Reports," 3d ser., vol. xxiv, 1879, p. 130. 4. M. Pénard, "Bull. de la soc. anat.," 1846, p. 389. 5. M. Hallopeau, "Thèse de concours d'agrégation," Paris, 1875, p. 987. 6. Dr. R. Mayne, "Dublin Hosp. Gaz.," 25 May, 1861. 7. J. P. Gama, "Traité des plaies de tête et de l'encéphalite," Paris, 1830, p. 264. 8. M. Lüneau, "Comp. rend. de la soc. de biol.," 1870, p. 133. 9. Jobert, "Études sur le système nerveux," Paris, 1838, p. 446-453. 10. Dr. E. R. Hunn, "Transactions of the American Neurol. Assoc.," vol. ii, 1877, p. 206. 11. M. Couty, "Gaz. hebdom. de méd.," 1877, p. 110. 12. M. Picot, "Oblitération de l'artère vertébrale dans le crâne," Bordeaux, 1881, pp. 12-19. 13. Reported by Professor Boettcher, "Arch. of Oph-

thalm. and Otolaryng.," by Professors Knapp and Moos, New York, vol. iii, 1873, p. 135. 14. M. J. M. Snook, "Trans. of the State Med. Soc. of Michigan," Lansing, vol. vi, 1874, p. 228. 15. MM. Cossy and Lorreyte, "Bull. de la soc. anat.," 1874, p. 83. 16. Parent-Duchatlet and Martinet, "Recherches sur l'inflammation de l'arach.," Paris, 1821, p. 47. 17. Published by M. Duranti, "Gaz. hebdom. de méd. et de chirurg.," Paris, 1862, p. 39. Other references are alluded to which show that the anterior pyramids corresponding to the palsied side of the body were found injured.

On the grounds mentioned the author concludes that: 1. Parts of the cerebrum which are not supposed to be motor are apt, by being injured, to induce paralysis. 2. Destructive lesions, sometimes very considerable, of the supposed motor areas in the medulla and pons Varolii are not always followed by paralysis of the limbs. 3. Very slight often, but most frequently very pronounced, if not complete, paralysis may follow a lesion on the corresponding side of the medulla, regardless of the seat of the lesion, which may be either in the posterior or lateral parts of the medulla, in the interior of this nervous center, or in the anterior pyramids. 4. It is impossible to admit that those direct paralyzes were due essentially to some other lesions than those in the medulla, as reported. It would be wrong to suppose that in the reported cases of direct paralyzes there was no decussation of the pyramids.

The author is aware of three instances of direct paralyzes where anatomical examinations were made, and the decussation of the anterior pyramids was found perfect. (Dr. E. H. Dickinson, "The Liverpool and Manchester Medical and Surg. Reports," Liverpool, p. 141, 1878; M. Blaise, "Bull. de la soc. anat.," p. 387, 1882; MM. Féré and Arnould, "C. R. de la soc. de biol.," 1887, p. 220.) As far as the author is aware, of the reported cases with bulbar lesions, the number of direct is greater than that of crossed paralyzes. This argument, it is stated, is the more valuable in face of the fact that the proportion of direct to crossed paralyzes in cases of lesions of the cerebral cortex is one to one thousand, while the proportion of the same in bulbar affections is far greater.

The author intends to show hereafter that bulbar or local lesions of other encephalic parts are not the essential cause of paralysis; that palsy is not dependent upon the loss of function of the injured motor area so called; that it is due to an influence exerted by irritation of the nerve cells and fibers surrounding the palsied parts; and that the irritation is propagated to a distance, and affects, in different parts of nerve distribution, the nerve elements fulfilling the motor function in the organ, this function disappearing by inhibitory act. The article is concluded by the statements that: 1. It is not the case that the fibers of the anterior pyramids decussate at the inferior part of the medulla, and that they are the principal paths for transmission of voluntary movements. 2. It is incorrect to suppose the medulla to be the principal seat of decussation of the conductors of voluntary movements. 3. Decussation of conductors of voluntary as well as of reflex movements of the limbs exist through the entire length of the cerebro-spinal center. 4. Paralyzes following unilateral lesions of either the medulla or any other cerebral part, in man and in animals, are not dependent upon destruction of the local centers or of a group of conductors of voluntary movements.

On the Methods of resuscitating Still-born Children.—The first step in Schultze's method is considered of great value for the reason that it commences by an expiratory act, and thus permits foreign matter or bodies to clear the air-passages and escape through the mouth. Schroeder remarks, in his work on obstetrics, that it is doubtful whether it is possible by this method to clear the air-passages from foreign bodies as thoroughly as by means of a catheter. M. D. Nikitin ("Jour. akousherstva e jenskich boleznei," No. 1, 1889) states that the moment the foreign matters reach the posterior nares and mouth they must be removed artificially by the catheter, or the air-passages will become blocked up again at the first inspiratory act obtained by this method. Schultze himself, as stated by Hofmann ("Lehrbuch der ges. Med.," 4te Auflage), announces that his method has no success in prematurely born infants, for the reason of the softness of the chest-walls. And, as reported by different authorities, the main objection to the method is that ten to fifteen swingings of the child's body do not suffice to succeed in resuscitating it; it is necessary to perform thirty to fifty

swingings in order to secure perfect breathing, and this heroic treatment implies great injury to the child. Dr. Winter (*"Vierteljahrsschrift für d. ges. Med.,"* 1887, Bd. xlvii, II. 1, S. 81) reports three post-mortems after such treatment; in one there was found an extensive extravasation of blood into the abdominal cavity; in the second, rupture of the liver and fracture of three ribs; in the third, rupture of the liver and bone injuries.

Though these cases might be considered as exceptional ones, yet they are easily understood. Dr. Nikitin states, with F. H. Champneys, that traumatism is very apt to occur in the asphyxiated infant, which is perfectly inert, with a weakened condition of the ligamentous apparatus, and especially being deprived of the flexibility proper to the living infant. According to Nikitin, Schultze's method is not to be abandoned entirely; he suggests taking advantage of the first step in this operation, which procures the first expiratory effort and so expels foreign bodies from the air-passages; he then uses the catheter to free the latter radically from the mucus, liquids, etc.; should the introduction of the catheter be attended by difficulties, he advocates repeating the same manœuvre for procuring expiration, and, if not successful, replacing this by Marshall Hall's method for the same purpose, using the catheter again for the removal of mucus, and immediately after this proceeding to insufflation through the catheter, or directly by the mouth of the operator.

The method of insufflation is too much neglected, the author thinks, the objections being, first, that the air fills up the stomach and alimentary tract rather than the lungs; and, secondly, that after forced insufflation the pulmonary alveoli are very apt to rupture. With the assistance of known authorities he experimented on dead subjects, and his opinion is that: 1. The introduction of air is performed with comparative ease. 2. Even with forced insufflation, the air enters more into the lungs than into the stomach, and it never reaches beyond the pylorus. 3. In completely filled lungs not once has artificial emphysema been found to exist.

The precautions that he observes are to avoid occlusion of the larynx by introducing the little finger into the child's mouth and lifting the root of the tongue somewhat forward. The external nares are closed with the fingers of one hand during insufflation, and immediately after this the mouth is occluded by the other hand for several seconds, to prevent the escape of insufflated air. He introduces the tube or catheter to the root of the tongue only; occlusion of the larynx by the tongue is avoided at the same time; the introduction of the catheter into the larynx or trachea he considers as being not only unnecessary for success, but even harmful, for it is under these very conditions that emphysema is induced, and very frequently the visceral pleura is ruptured by the great tension of air. It is advocated to avoid such accidents by insufflation, either directly by the mouth or by means of a catheter, into the mouth of the child. He finds no objections to the filling of the stomach with air by that means, for the air tension in the lungs is counterbalanced by that in the stomach, and artificial emphysema is thus avoided.

Other objections to the insufflation method are that the exhaled air of the operator is too poor in oxygen, and contains an excess of carbon dioxide; that foreign bodies present in the larynx are apt to be driven further into the lungs, which might result in pneumonia. Dr. Nikitin averts the first objection by alluding to Pflüger's statement (*"Arch. für Physiologie,"* 1868, Bd. i, S. 61; also Schwarz, *"Die vorzeitigen Athembewegungen,"* Leipzig, 1858) that the consumption of oxygen in the newly-born is so small that there is hardly any difference noticed between the arterial and venous blood of the umbilical vessels; and, according to Paul Bert (*"Leçons sur la physiologie comparée de la respiration,"* Paris, 1870), the muscular tissues of newly-born animals absorb less oxygen than those of adults in the proportion of 29 to 47; so that there is still a sufficient amount of oxygen in the exhaled air for the newly born.

With regard to the excess of carbon dioxide, which is four per cent. according to P. Bert, respiration is interfered with in animals when the amount of carbon dioxide amounts to twenty-four per cent. under pressure of 760 mm.

Further advance of foreign bodies into the lungs can be avoided, it is stated, by carefully cleansing the child's mouth with the little finger,

or by introducing the catheter into the larynx and aspirating. The author speaks highly of the use of insufflation, especially when simple means fail to bring about respiration; should even amniotic liquid blood, and mucus be driven into the lungs, the mucous lining of the respiratory tract might absorb these substances, or they may be thrown off by the first expiratory effort (Schroeder).

The use of ether for inhalations or local applications to the nostrils (Harris Jones, *"New York Medical Journal,"* August 21, 1886) Dr. Nikitin does not consider preferable to that of spirit of ammonia. He thinks that subcutaneous ethereal injections (Grose, of England) must be of value in the enfeebled circulation of the asphyxiated infant, but that experimentally this has not been sufficiently worked out.

Faradization of the phrenic nerve is advocated by Pernice, and is often of good service, but it has the objection of the foreign matter remaining in the respiratory tract, the essential inconvenience, however, being the absence of the battery when needed.

On the Currents of Activity in the Frog's Brain.—B. F. Verigo (*"Vratch,"* No. 2, 1889) makes this communication. Professor J. M. Setchenoff had studied the nerve currents in the medulla of the frog, and noticed that they were periodical, which he ascribed to periodical excitations of the medullary centers.

The reporter has studied the nerve currents in the cerebro-spinal axis, connecting by a galvanometer two points in the spinal cord—one in the thoracic region, the other in the lumbar enlargement. He has obtained a deviation of the galvanometric arrow which, he thinks, indicated the occurrence of a current at each reflected impulse of the limbs; the direction of the current was such as always to present the electro-negative area in the lumbar enlargement.

Since during reflex movements the lumbar region must be in a condition of higher excitation than other parts of the central nervous system, the inference is drawn that the electro-negative tension is connected with areas of most activity. On this basis the galvanometer was proposed by Professor Farhanoff to be used in the study of brain localization. Verigo obtained constant swingings of the galvanometric arrow while experimenting on one hemisphere of a frog; the anterior part of the hemisphere, however, was found decidedly electro-negative to the posterior at each movement of the limb. Professor Farhanoff remarked that this spoke in favor of the anterior cerebral half of the hemisphere performing the function of voluntary movements.

On the Absorption of Necrosed Hepatic Tissue by the Hepatophages or Giant Cells.—Professor W. W. Podwisotsky (*"Vratch,"* No. 3, 1889) relates the following facts with the view of throwing some light on the pathogenesis of the giant cells: An injection of from 2.5 to 3 c. c. of alcohol, of a 35 to 40 per cent. solution, into one of the branches of the portal vein immediately traversing the hepatic parenchyma is followed by gradual formation of groups of giant cells in the mortified hepatic area supplied by this branch. The giant cells are most abundant at the line of demarkation between the normal and dead hepatic tissue, being in intimate contact with the dead hepatic cells; on the seventh or eighth day the number of giant cells is enormously increased, and they lodge not only in the line of demarkation, but too in the very focus of necrosis, individual areas collecting in groups around the dead hepatic cells. In proportion to the increased amount of giant cells in the peripheral layers of the deadened focus the line of demarkation becomes wider, looks more irritated, and contains less traces of hepatic parenchyma. The size of the giant cells differs, each containing from three to four up to fifty and more nuclei in the enormously increased protoplasm, which may extend over an area of several dozens of hepatic cells.

Even with a low power the giant cells are seen under the microscope to have a more or less regular semilunar shape, in the concavity of which lodge somewhat round or polygonal masses; other cells are simply very large, containing in their interior similar opaque masses, which seem to be surrounded by a limiting zone. Frequently one giant cell holds in its interior several such opaque masses of different sizes, and some of them attain a large size, seeming to be composed of several polygonal masses. On the seventh or eighth day after injection the portal branches of the necrosed areas are bloodless and obliterated by connective tissue.

The relation of the giant cells to the masses they contain and the adjacent necrosed hepatic area is made very clear by using double-staining agents, such as borax-carmin followed by picro-Victoria-blue. The stained specimens thus obtained permit of the inference that the masses inclosed by the giant cells and the necrosed hepatic cells are virtually identical.

Microscopic examinations with a high power confirm the idea that these masses are disintegrated hepatic cells; the degree of disintegration can be studied in the line of demarkation and in the giant cells. With the advance of disintegration and decrease in size of the masses of hepatic cells the giant-cell protoplasm is constantly increasing.

The anatomical changes taking place in the line of demarkation of the normal and pathological hepatic cells are formulated as being: 1. Formation of giant cells around the necrosed hepatic cells. 2. Subsequent disappearance of these pathological cells in the giant cells and under their influence, the giant cells assimilating the organic matter resulting from cell disintegration.

The author thinks this to be the first description of the process of assimilation of the necrosed hepatic cells by the giant cells, generated through the circulatory medium, in the necrosed hepatic parenchyma. He compares the giant cells to I. I. Metchnikoff's phagocytes, and names the former hepatophagues, or absorbers of hepatic tissue. He suggests, too, the term "necrophagues," since it is applicable to cells eating away dead from living tissue, and by doing so, it is supposed, there will be avoided the confusion with the term "phagocytes," which eat away living (bacteria) and dead tissue indifferently; for the cells destroying living tissue the term "biophagues" is suggested.

In accord with Virchow, Ziegler, Wegner, Levschin, and others, the author thinks the giant cells to be derived from connective tissue and endothelial cells; he has not found any facts speaking in favor of their origin being from the leucocytes.

Concluding, the author remarks that the giant-cell genesis seems purposeless in the beginning of the process which is going on under the influence of foreign bodies in living tissue, and that the physical and chemical properties of the foreign bodies play an important rôle in the formation of giant cells; that irritations of a given character and intensity are apt to start this process of atypical protoplasm formation, a type of which are the giant cells.

According to Marchand the contact of iodoform with granulation tissue prevents giant-cell formation. The author has pointed out elsewhere in his work on partial hepatic necrosis influenced by the presence of ammonium and phosphorus in the blood, that no giant cells were to be found around such necrosed areas, and this leads him to believe that irritation caused by alcohol must be different from that stated above; that the same phenomenon is observed in the action of different bacteria, some of them being, and others not, capable of encouraging giant-cell formation.

On the Variation of Glycogen Production in Icterus.—MM. Dastre and Arthur ("Progrès méd.," No. 14, 1889) have studied the subject, and the statements are made that there are difficulties in the way of determining this variation; that in experimenting it is necessary that one of the principal hepatic ducts should be ligated in such a way as not to interfere with the function of the others. Partial icterus is so induced, and it is possible at the same time to compare the pathological and physiological portions of the same liver. In this way it was determined that the amount of glycogen in the icterous portion of the liver diminished invariably, and this was confirmed by the different known reactions. The authors remark that noticeable digestive disturbances must follow in such cases.

On the Alteration of the Red Blood-corpuscles subsequent to Eclamptic Fits.—M. Féré ("Gaz. hebdom. de méd. et de chir.," No. 12, 1889) has observed decided alteration of the red cells after epileptic fits; on examining the blood one hour and a half after the fit, the cells are found to be spherical; the next day they assume their normal aspect, their globulin having increased at the same time. This fact is analogous, the authors think, to what occurs after hæmorrhage, menstruation, or any serious disease.

On the Hepatic Lesions in Eclampsia.—M. Pilliet ("Progrès méd.," No. 14, 1889) reports that such lesions are found very frequently on microscopic examinations; they are seated in the portal spaces, and

consist in a stagnation of blood with destruction of hepatic tissue. In the varieties of eclampsia that terminate in icterus, which are met with frequently in maternity hospitals, the same lesions are found, being very extensive, and sometimes confluent; in the latter cases the parenchymatous disintegration of the liver resembles that found in fatty icterus.

On the Measurement of the Blood-Cells—a Globulimetric Scale.—M. L. Malassez ("Jour. des soc. sci.," No. 3, 1889) suggests that the easiest method for practical measurements of the blood-cells is: 1. To take an impression of a certain magnitude of a nice preparation of blood by means of the camera lucida. 2. To measure the corresponding designs of the cells, and then calculate the normal diameters. The first part of the process can be performed more or less accurately by taking certain precautions, as was pointed out by the author in June, 1878. The results are more satisfactory when photographs of the blood-cells are used for the purpose. The second has the objection that the blood-cells are not always perfectly circular; this being the case, it is necessary to measure more than one of their diameters to obtain the average; this requires much time and is not exempt from error.

It is four years that the author has been trying to simplify the latter operation, to render it more precise and rapid; he has invented now for the purpose a graduated scale, which he chooses to call a globulimetric scale.

It is a flat, transparent ruler, with finely engraved circles disposed in order of their increasing diameters.

The most convenient arrangement, the author thinks, is to have the diameters of the crossing circles disposed in two lines differing from each other in one fourth of a millimetre, the disposition being as represented:

. . . (6) (6.50) (7) . . .
(6.25) (6.75) (7.25) . . .

The scale is made of glass or any other material. The instrument is used by placing it over the photograph of the blood-cell. The size of the engraved circle on the scale corresponding to the photograph of the blood-cell being known, and also knowing how much the diameter of the photograph is magnified, the natural size of the blood-cell is easily deduced.

He further states that the results obtained are pretty constant, and it is rare that a blood-cell does not correspond to any of the engraved circles of the scale. Should errors still exist, they amount only to half the difference between two successive sizes, or half of one fourth of a millimetre when the photograph is magnified a thousand times. He measures usually a hundred blood-cells and takes the average. Mention is made of the importance of being enabled by this instrument to get, without loss of time, the proportionate differences of the cell diameters.

For demonstrative purposes he suggests the graphic method, which may be expressed either in curves or in columns of different heights and widths, the latter indicating the difference of diameters and the former that of the number. The globulimetric scale can be used, it is suggested, for exact measurements of all microscopic bodies having a circular or spherical shape; satisfactory results are obtained too by measuring different diameters of bodies of more complex forms.

On Pulmonary Ventilation and Thoracic Amplification under the Influence of Gaseous Lavation.—M. Brown-Séquard has demonstrated experimentally ("Académie des sci.," Feb. 11, 1889) the existence of a respiratory poison, which is eliminated in healthy persons, and is capable of poisoning rapidly, if injected hypodermically, or even if simply inhaled. For this reason improvement in the pulmonary ventilation is practically beneficial to phthical patients; it is admitted that the diminution of this poison is in direct ratio to the pulmonary ventilation.

Dr. L. Bergeon ("Lyon méd.," No. 13, 1889) proposes to ventilate the lungs themselves in phthical patients, instead of ventilating the rooms.

According to Cl. Bernard, Demarquay, and the experiments of Bergeon himself, carbon dioxide introduced into the rectum is rapidly eliminated by the lungs, and the pulmonary ventilation is considerably augmented at the same time. If this gas contains no impurities it is rapidly absorbed by the intestinal venous system, and carried to the lungs, through which it filters, charged with *débris* of organic matter.

The statement is made that it is well to administer this gas in the form of natural mineral waters; that certain patients do not tolerate sulphureted waters. The author has used arsenical waters of complex mineralization. He is convinced that the bacilli of tuberculosis have been observed to grow irregular under such treatment, and to disappear gradually. He ascribes these results not to the direct action of the gaseous lavations, but to the improvement of pulmonary ventilation, which increases the filtration of organic impurities, increases the organic respiratory energy, the vital overactivity, and causes a greater capacity of resistance; all these conditions bring about the pulmonary self-disinfection. Allusion is made to the fact that insufficient thoracic dimensions predispose to pulmonary phthisis, and that under the influence of gaseous lavations the thoracic circumference is decidedly increased.

Dr. Bergeon presented a phthisical patient who had been submitted to this method of treatment. In November, 1888, the thoracic circumference was seventy-five centimetres, the intermamillary space eighteen centimetres. After two months' treatment the measurements were found, respectively, seventy-six and nineteen centimetres. In March, 1889, they were seventy-nine centimetres for the thoracic circumference, and twenty-one centimetres for the intermamillary space. The patient was improving considerably during the period of treatment. Other cases are reported with equally successful results.

It is remarked that thoracic amplification is not manifested under the treatment in confirmed phthisis, especially at the period of the existence of pulmonary cavities; but the amount of tissue remaining sound improves in nutrition and compresses the walls of the cavities, and the stethoscopic indications of the same disappear. The cavity remains practically as such, but, from close opposition of the limiting walls, air no longer enters it.

Tracings of Excitations obtained by stimulating an Anæsthetic Region in Hysterical Persons.—M. Alfred Binet ("Jour. des soc. sc.," No. 5, 1889) states that faradaic or mechanical excitations applied to anæsthetic regions in hysterical persons diffuse readily all over the body, and that myographic tracings of these excitations can be obtained from any part of the body. Sometimes it is necessary to re-apply the stimulus a number of times, but the tracing can finally be got. The length and duration of the contraction are dependent upon the intensity and duration of the excitation. A stimulus of the same intensity applied to a normal and to an anæsthetic area diffuses more markedly in the latter; the results are more conspicuous by using the Du Bois-Reymond apparatus.

The observations, being in accordance with those of Charcot, Richer, Féré, and a number of other physiologists, show that, though the hysterical person is unconscious of the excitation of the anæsthetic region, yet the stimulus is felt all over his organism and acts on all his muscles. With a certain amount of care it can be found that the tracings indicate precise rhythmical reactions, and not an irregular diffusion of the stimulus. This proves that the psycho-motor centers perceive the number and form of the insensible excitations. These motor phenomena seem to the author to have connection with the phenomena of visual perception in hysterical anæsthesia ("C. R. del' acad. des sc.," December, 1888). He has shown that in some hysterical subjects excitation of an anæsthetic region determines definite visual impressions which are in relation with the number and form of excitations, and alleges now that, even in case all precautions are taken to prevent the patients being conscious of the stimulus applied, the same results hold good.

He supposes that the phenomenon of visual perception is a variety of motor reaction provoked by excitation of the insensible region, the only difference being that in one case the excitation is appreciated by the visual and in the other by the psycho-motor centers. The identity of causation of the motor and visual perceptions in such cases M. Binet bases upon the fact that the time of visual impression, as indicated by the subject, coincides with the myographic tracings brought about by the same stimulus.

M. Ch. Féré ("Note sur quelques effets des excitations périphériques chez les hystériques," "Jour. des soc. sc.," No. 5, 1889), while not denying the possibility of visual impressions being induced by cutaneous excitations, accepts the statements with reserve.

On the Influence of Anæsthetics on the Force of the Respiratory Movements (Presented by M. Verneuil).—Hutchinson and Kraemer have shown experimentally that men and animals can not overcome, in either the inspiratory or the expiratory act, the pressure of a column of liquid offering a certain resistance. MM. P. Langlois and Ch. Richet ("Comp. rend. de l'acad. des sc.," No. 13, 1889) have verified the statement, and found that, as a general rule, it is impossible to expire or inspire through a column of mercury of 100 mm.

They made a tracheotomized dog respire through a Müller's plug, modified somewhat by themselves, the branches of the plug containing columns of mercury of different heights. Under such conditions a dog could breathe for a few moments through a column 60 mm. high, but it soon got asphyxiated. To maintain rhythmical respiration and avoid asphyxia, the column must not exceed 25 to 35 mm.; this would allow respiration for several hours; though breathing is laborious, no asphyxia threatens.

Should the animal be anæsthetized by ether, chloroform, or chloral, a feeble pressure suffices to interfere with respiration; a pressure of 10 mm. asphyxiates a dog profoundly anæsthetized, but produces no interference in the normal animal. It is the expiratory effort that is mostly interfered with; under the pressure of a column of mercury of 15, 20, and sometimes 25 mm., inspiration is still performed during anæsthesization, whereas the pressure of a 10-mm. column of mercury actually interferes with the expiratory act, and asphyxia takes place.

The experiments are in accordance with the physiological phenomena of respiration; the inspiratory movements are always active, but the expiratory are purely passive in the normal state, being due to pulmonary elasticity, without the intervention of muscular action; they are active only when they are voluntary or reflex. Both voluntary and reflex actions being abolished by anæsthesization, the active part in expiration is of necessity wanting; the pulmonary elasticity is then not sufficient alone to overcome the pressure of a column of 10 mm. Under the same conditions of anæsthesia the inspiratory act is maintained, for, though being an active phenomenon, it is neither voluntary nor reflex; it is automatic, brought about by bulbar excitations, which, though enfeebled, are not abolished by the anæsthetic.

With regard to the use of anæsthetics in surgery, this shows that it is of great importance to keep the respiratory tract perfectly free from mucus during this process, for an obstacle to respiration imperceptible in a normal animal is very apt to asphyxiate an anæsthetized subject. The author thinks that surgeons pay special attention to the inspiratory act, when it is of most importance to provide for the performance of expiration; the most frequent obstacle is usually the base of the tongue.

Researches showing that the Toxicity of the Expired Air is not Dependent upon the Presence of Carbon Dioxide.—In three communications made previously ("Acad. des sc.," Nov. 28, 1887; Jan. 9 and 16, 1888) the effort was made to show the relation between pulmonary tuberculosis, the expired air of men and domestic mammalia, and the toxic power of one or more substances derived from the lungs. New researches on the subject lead MM. Brown-Séguard and d'Arsonval ("Jour. des soc. sc.," No. 8, 1889) to think that the simple or multiple poison escaping with the expired air, even in small doses, is capable of killing without being injected directly into the blood-vessels. Injected subcutaneously, this poison was seen to kill seventeen out of eighteen animals. In two thirds of these animals death supervened within from twelve to twenty-four hours after the injection. The majority of the animals were injected with less than 32 c. c. of the toxic liquid. The smallest of them weighed 1,750, and the largest 2,350 grammes. The poison is capable of killing even if injected into either the stomach or the rectum, though two only out of seven rabbits died that had received from 24 to 36 c. c. of the liquid by the stomach. Cl. Bernard and P. Bert have shown that large quantities of water can be injected with impunity into the lungs of mammalia. According to Brown-Séguard and d'Arsonval, an injection of even such a small quantity as 8 to 12 c. c. of water obtained from condensed expired vapors brings about death, which is preceded in the majority of cases by inflammatory products in the lungs. Such are the results, the authors think, from the effect of confined air. They do not accept the toxicity of the pulmonary liquid as due to the presence of micro-organisms, since the toxic action remains the same after the

liquid has been brought to a temperature of 100° C., and exposure to the external air avoided. They used for the researches an apparatus that served to determine the vicious effects of the expired air, and convinced themselves that the carbon dioxide of this air did not share in the toxicity.

An incomplete description of the apparatus is given, and it is concluded from the experiments, in which some of the animals were made to breathe the air expired by the others, that death under such conditions takes place in a way similar to that occurring after subcutaneous or intravascular injections of the pulmonary liquid. The respiration is lowered, the action of the heart accelerated; the temperature falls, at first gradually and toward the end suddenly; soon diarrhœa supervenes, and lasts till the close of the animal's life. Death takes place without agony, or at least without convulsions. The cadaveric attitude shows that there has been no struggling before death, the animal reposing on its bent limbs, abdomen, and thorax as if it were asleep. The post-mortem reveals that the animal died of arrest of exchanges between the tissues and blood. The right ventricle contains reddish instead of dark blood. The aorta and vena cava contain more blood than in cases of ordinary death; the color is brighter than that found after death following agony. The bladder and rectum are full; the lungs are of faint red color, scattered with ecchymotic spots and foci of inflammation, as is found in animals killed by an injection of the pulmonary liquid into the bronchi; a similar emphysema is found too. The liver, kidneys, and other abdominal viscera are congested. Frequently intestinal hæmorrhages are found, and sometimes pericardial also.

The authors conclude, on the basis of the analogy of the post-mortem appearances in the cases of death from respiring confined air and those of death caused by injections of the pulmonary liquid, that the cause of death in both cases is identical, though they do not deny the possibility of admixture of some additional poison in the experimental cases of inhalation of vitiated air.

Researches on the Action of the Poison of the Salamandra Maculosa.—M. Abel Dutartre ("Comp. rend. de l'acad. des sci.," No. 13, 1889) communicates the results of his observations on the action of this poison on the different organic functions of the frog.

As has been pointed out by others, the action of the poison on frogs is characterized by a violent convulsive period, with general tetanic attacks, which are followed by a period of paralysis, suspension of respiration, and complete muscular relaxation. According to the amount of poison, the paralytic period may be followed by death with suspension of the heart's action in diastole, or by return to life preceded by a convulsive attack. Thus far the author admits the results, but, in addition, he has found that death finally supervened in frogs that were considered by others as convalescent from the poisonous effects.

At the autopsy, in such cases, all the organs of animal life were found completely anæmic, and often it was impossible to collect a few drops of blood from the heart.

The author thinks M. Calmels is wrong in supposing the action of the poison of the scorpion to be similar to that of the salamander, for, according to M. Joyeux-Laffine, the former poison acts neither on the muscles nor on the blood. According to the author's researches, the action of the poison manifests itself on the nervous centers; convulsions ensue by direct excitation of the bulbar or medullary centers; the brain has no action in this phenomenon; the sensibility, though enfeebled, persists longer than the motor function. The motor nerves are poisoned and the poisonous action on the nerves is complicated by similar action on the muscular fibers themselves. Muscular contractility is abolished very rapidly, even on the occurrence of the first convulsion; the results were confirmed by tracings obtained from the gastrocnemii of the poisoned frogs, as compared with the limbs isolated by a strong ligature excluding the sciatic nerve. No histological changes of the muscular fibers were found. The respiration remains normal for from five to ten minutes after the injection of the poison; then tracings show a deep inspiration followed by from five to six feeble ones in the succeeding few minutes. The respiratory movements soon become more vigorous and numerous, continuing so until the first tetanic attack, when there occurs respiratory suspension with lowering of the buccal floor. Between the convulsive attacks the respiration may be re-established for

a few seconds. In the beginning of the paralytic stage there is decided and final arrest of respiration, which lasts during the entire period of immobility. Cardiac tracings show that the number of beats varies little during the period of poisoning, but the different parts of the cardiac curves show progressive enfeeblement with the progress of the paralysis; a period of repose appears between the auricular and the ventricular systole, the reverse of what occurs in normal cold-blooded vertebrates. This poison acts directly upon the blood-corpuscles by dissolving them. Under the microscope segmentation of the blood-cells is observed to occur; when they are treated with a solution of the poison, the degree of their solubility is in proportion to the strength of the poisonous solution. Specimens of blood taken at different periods of poisoning from the beginning show first that, after a few hours' intoxication, the blood-globules are granular and the nucleus soon disappears; that after a more advanced period a larger number of globules are deformed and decomposed. Those remaining intact preserve the property of staining readily with eosine, which indicates the persistence of hæmoglobin, but most of the globules and plasma disappear.

On the Influence of Cortical Lesions on Vision.—M. Lannegrace ("Arch. de méd. expér. et d'anat. pathol.," No. 1, 1889) enumerates the best-known works on the subject, and the diversity of opinions on the same. His own methods of inducing the cerebral lesion and of testing for the lesion and the nature of it are carefully described. From his two years' experiments on dogs and monkeys he arrives at the following conclusions: 1. That visual disturbances can be induced not only by occipital lesions, but also by injuries of the frontal, temporal, and parietal regions. In accord with Goltz, Loeb, Luciani, Tamburini, and Bianchi, he finds that a lesion of the most anterior portion of the frontal lobe, of that in front of the motor zone, fails to induce visual trouble. 2. Not always does visual trouble ensue after injury of the regions named; it is frequently impossible to detect any visual defect, whichever region has suffered injury. The inference is either that there is no specialized area whose existence is necessary for the visual exercise, or that the induced visual imperfection, in some cases, is too feeble to be appreciated by the methods available. 3. The intensity of the visual trouble, induced apparently by identical lesions, varies greatly; the same is true of the degree of the induced sensory and motor disturbances. 4. The intensity of the visual trouble depends upon the seat of injury. All conditions being equal, the most marked disturbances follow occipital lesions. 5. The intensity of the visual disturbance depends upon the extent of the lesion, augmenting considerably on the repetition of the injury. A lesion of one centimetre in diameter is always followed by visual disturbances; and, in case of negative results, a second lesion, either at the place of the preceding one or in its neighborhood, regardless of its diameter, is always followed by visual defect of great intensity. 6. Visual imperfections subsequent to the first lesion are always transitory, lasting from several days to several weeks. The compensation takes place either in the remaining cortical substance of the same hemisphere or in the corresponding portions of the opposite hemisphere. 7. Successive unilateral lesions render the visual trouble not only more intense, but more permanent and persistent. It is permissible to suppose that different cerebral portions compensate in a certain measure for the injured area, when such compensation is needed. 8. After the disappearance of visual disturbances induced by one or more unilateral mutilations, a symmetrical or non-symmetrical lesion on the opposite side not only gives rise to visual disturbances proper to such a lesion, but also makes the previous lesion reappear and renders it more persistent. This leads one to suppose that either one hemisphere compensates for its fellow (and evidently injury to the compensating hemisphere must of necessity result in the conditions stated), or, if gradual recovery after the first lesion is due to the remaining uninjured cortical portion, its function is abolished by inhibition after injury to the opposite hemisphere. The inference is that the function of one cerebral hemisphere depends upon the integrity of the opposite one. 9. Very extensive bilateral lesions have never induced permanent blindness, even when the occipital regions were mutilated; all these lesions involved the surface of the cerebral convexity.

With reference to the nature of visual disturbances the statements are made that: 1. The nature of disturbances following cortical lesions varies; there may be homonymous hemiopia or crossed amblyopia. 2.

There may be pure homonymous hemiopia; crossed amblyopia is almost always associated with some degree of hemiopia, and is very rarely pure amblyopia. 3. The nature of the ensuing blindness is dependent upon the seat of the lesion; homonymous hemiopia follows lesions of any region; anterior lesions only are complicated by crossed amblyopia. It is proper to suppose the cerebral surface to possess a very extensive hemiopic zone, having the main focus in the occipital region, and a limited amblyopic zone anterior to the preceding one. 4. In visual disturbances of cortical origin tolerable perception of impressions seems always to exist in the center of the retina. 5. In accordance with Goltz and Loeb, the author finds that there is no correspondence between given cortical and retinal areas. This he does not state as an absolute rule. With regard to ocular, motor, sensory, and nutritive disturbances induced by cortical lesions, the statement is made that the internal and external muscular mechanism of the eye remains intact, whatever the seat of the lesion is.

Normal and Hypnotic Sleep the Results of Inhibition of Mental Activity.—In previous researches Brown-Séguard ("Arch. de phys. norm. et pathol.," Nos. 1, 2, 1889) has demonstrated that hypnotic sleep was the result of an inhibitory effect, and that, in organic or traumatic lesions of the encephalon, the temporary loss of consciousness is due to the same intellectual inhibition. The following reasoning is given for attributing normal sleep to an inhibitory effect: Durham and Hammond's theory that sleep is dependent upon vascular contraction taking place in the cerebral lobes can not be accepted, since rabbits and guinea-pigs, after section of both great sympathetics of the neck, sleep the same as if they had normal cerebral circulation. The same results are obtained from experiments on cats and dogs, after extirpation of the superior cervical ganglia on one side, and section of the vago-sympathetic on the other. This opposes directly the theory of vaso-contraction during sleep, for, whether there is intense hyperemia or anæmia, sleep is not interfered with. That the loss of consciousness during sleep, as well as during numerous other accidental or pathological conditions, is due to inhibition of the cerebral faculties is confirmed by the facts that (1) loss of consciousness from puncture of the medulla and similar conditions is decidedly due to an inhibitory act; (2) with regard to what is known of the conditions that precede or accompany sleep, it suffices to conclude that, as in any inhibition, at the onset and during sleep there exist irritations in the organism at a distance from the organ subjected to loss of activity. The following details confirm the existence of irritations: *a*, The so-called need of sleep is characterized by certain sensations, and particularly by a sense of heaviness in the eyes; *b*, persistent constriction of the pupils; *c*, contraction of the orbicularis palpebrarum; *d*, contraction of the rectus internus and superior; *e*, contraction of the blood-vessels of the retina and cerebral lobes. Aside from inhibition of the psychical faculties, there is inhibition of certain muscles, and perhaps some cardiac and respiratory inhibition. These different inhibitory acts during cessation of intellectual activity imply the existence of irritation somewhere or at different points.

The induction of sleep in man by compressing the carotid and cervical vago-sympathetic (Fleming and Augustus Waller) proves that sleep is apt to be induced by peripheral irritation. To this may be added the fact of the somnolent influence of certain gastric irritations. As regards the location of the irritation inducing sleep, it is not correct to suppose its existence in the brain, for pigeons sleep and awake periodically after as well as before ablation of the cerebrum. The reflex contractions and paralytic irritations associated with sleep, if considered as originating from the same point, are to be located in the excitable parts of the cerebral base rather than in the cerebral lobes. (The author has often witnessed the hyperæmic condition of the base of the brain, and especially of the medulla and spinal cord, during sleep.)

As an argument additional to these statements, it is alleged that, in artificial epilepsy of guinea-pigs, it is possible to induce loss of consciousness and cessation of convulsions by peripheral irritation; loss of cerebral activity may take place, too, by inhibition through the influence of irritation, even when very slight, especially if the seat is in Flourens's *moelle vitale*.

There can be no doubt after these statements, the author thinks, that there exist irritations at different points present during sleep, and

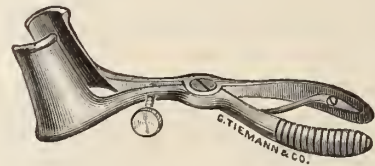
beginning before sleep sets in. He is convinced that the facts are sufficiently conspicuous to lead to the belief that the principal phenomenon of ordinary sleep—*i. e.*, loss of consciousness—is the effect of an inhibitory act.

New Inventions, etc.

AN IMPROVED NASAL SPECULUM.

BY CARL E. BLACK, M. D.,
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RECENT advances in the diagnosis and treatment of nasal troubles have made it necessary that every practitioner shall be provided with a nasal speculum. Many forms are now in use, yet there is room for improvement, or, perhaps more properly, for simplification. It is desirable to have an instrument that may be adapted to the greatest number of cases in the hands of both the general practitioner and of the specialist. After having used Simrock's speculum for some time with satisfaction, in a limited number of cases, the writer was led to devise the speculum represented in the following cut:



It retains all the advantages of the Simrock and at the same time may be adapted to a much larger range of cases. The blades are short enough not to impinge painfully against the bony parts, and yet are long enough to give a complete dilatation of the nostril. The ends of the blades are of such a shape as to be easily self-retaining when once put into place and the nostril dilated. The handle is put on at such an angle as to lie against the face, and is entirely out of the way of the operator. This handle is also useful in manipulating the speculum so as to bring the various parts of the anterior nasal cavity into view.

The blades are three quarters of an inch long, and when closed are similar in shape to the undilated nostril. The thumb-screw takes the place of the spring which is used in so many specula, and which is too strong for some cases and too weak for others. It is rarely necessary to insert a speculum more than half an inch, and a quarter of an inch is usually far enough, as great dilatation is needless and it is painful to the patient. All parts of the anterior nasal cavity can be brought into view by moving the head of the patient, or by changing the direction of the blades of the speculum.

This instrument was devised while I was at work in the clinic of Professor Schroetter, in Vienna, and was made in that city. It is now made from the same model by Tiemann & Co., of New York. Several instruments of this new pattern are in use at the Massachusetts Eye and Ear Infirmary, and by many private practitioners.

Miscellany.

The Paris Universal Exhibition.—The special correspondent of the "Lancet" thus continues his account of the session of the International Congress of Hygiene: On the 8th inst. the English delegates gathered in Section 5, in the hope that the question of quarantine would be reopened. Dr. Proust, however, was absent, and, as he was the author of the report on the subject, it was thought advisable to await his arrival. The Section therefore proceeded to discuss the subject of vaccination. Dr. Villemin related that in the department of France where he lived

vaccination was performed only once a year, and those who were not present on that occasion could not be vaccinated. A Mexican delegate spoke in favor of compulsory vaccination, and Dr. Treile lamented that, even in an intelligent center like Paris, the population displayed the greatest indifference to the subject. He described how at Fribourg small-pox had reappeared since the abolition of compulsory vaccination in that town. An American delegate said that from time to time he instituted a house-to-house visitation, so as to know if all the inhabitants had been vaccinated. Dr. Arnoult, military inspector, claimed that to the army belonged the honor of having given the example to the French nation of the advantages that accrue from vaccination and revaccination. But their difficulty was to contend against the non-vaccinated civil population. In the Second Army Corps some soldiers under his care contracted small-pox at the Amiens Hospital. To avoid resistance he had sought to popularize vaccination from the calf. Dr. Proust, who by this time had arrived, said that the German army was only really exempt from small-pox when the civil population had been vaccinated and revaccinated. He preferred vaccination from the calf to the use of lymph from even the healthiest-looking children. Dr. Felix said that in Roumania vaccination, but not revaccination, was obligatory. They had not succeeded, even with the aid of the law, in vaccinating everybody till vaccination from the calf was introduced; then the popular resistance ceased. Dr. Janssen said that in Belgium vaccination was not obligatory by law, but was insisted upon in every school, in every public service and institution, and was so admirably organized that there were very few Belgians who were not properly vaccinated. The subject was then allowed to drop.

Mr. Adolphe Smith, on behalf of the English delegates, now rose to inquire whether the Inspector-General of the French Sanitary Services, Dr. Proust, understood that the Section had not adopted the fourth clause of the conclusions of the report on sanitary works in seaport towns. The first three clauses had been carried unanimously, but, as nothing had been said about quarantine, Mr. Smith, in common with several others, imagined that the vote did not apply to the fourth clause. The English delegates, especially at this late hour, were not in the least desirous of opening up the question of quarantine, and if Dr. Proust would concur in the opinion that the fourth clause had not been put to the meeting the subject need not be further discussed.

Dr. Proust, however, did not agree to this. He was under the impression, on the contrary, that the fourth clause had been adopted; but, if there were any objection to this clause, he was quite willing that the matter should be investigated. Dr. V. Vignard, formerly director of the sanitary service of the Lower Danube, rose and fully indorsed what Mr. Adolphe Smith had said. He had also voted for the first three clauses, which alone had been discussed, and not for the fourth, to which he was absolutely opposed. A conversation thereupon arose between Dr. Proust and Dr. Vignard, which continued till they were called to order and each party asked to make a statement. Dr. Vignard consequently delivered an energetic speech. The resolution stated "that it was only when the ports presented a soil unsuitable for the penetration of morbid exotic germs that the last quarantine checks could be abolished"; but what criteria were they to show that the soil could not harbor germs? A port was never quite purified. People talked of the "rendering healthy" (the *assainissement*) of England as if it was something similar to the washing of a plate—an operation which, when once performed, was evident to all eyes. But there were English delegates present who could testify that this was not the case. In spite of the great works accomplished in England, much remained to be done, and even in London there were many plague spots. He complained that he did not know what was going on in the sanitary services of France, and required a large publicity and public control with regard to the quarantine observations imposed by the French port authorities. He had noted with pain and surprise a remark in Dr. Brouardel's opening speech, to the effect that the treason of one guardian of a lazaret had cost Spain in 1884-'85 no less than 200,000 lives. What was this system which by the momentary neglect of one out of many thousand guardians could bring about the loss of 200,000 lives? He agreed with quarantine as defined by Fodéré in 1815. It meant a rope. The difficulty was to prove its utility or its inutility; for if we pointed to failure in one country, others would point to success in other countries.

History, however, was against quarantine; for in the fifteenth century it had been properly and rigorously applied. In those days it was said that for a quarantine three things were necessary—money, force, and the hangman. A quarantine enforced, as in the past, by sentences of death was logical; but as we were not prepared, and as it was absolutely unpractical, to return to these barbarous practices, it was illogical, vexatious, and useless to maintain the fiction of quarantine. It was not till the Government of England had officially proclaimed that quarantines were useless that real sanitary improvements were accomplished. The great fear entertained in England of cholera facilitated the execution of sanitary works. What was the use of asking municipalities to vote large sums for sanitary works if they were told at the same time that they would be protected by the imposition of quarantines which would cost them nothing?

Dr. Proust, in reply, protested that he had no desire to revive the old quarantine methods. They were willing to give every facility to companies whose ships were well managed. As for publishing the details of what was done, that would be very uninteresting reading, but whenever anything of interest happened it was at once communicated to the press. The term quarantine was subject to misinterpretation; the abolition of this word had been proposed at the Rome conference. We need only take precautions against the cholera, the plague, and the yellow fever. These diseases came from such a distance that precautions were possible. First, all consuls in the different distant ports could telegraph information; then the journey took from fifteen to twenty days, which was in itself a period of observation; and, finally, the greater part of the ships had to pass through the Suez Canal, where timely information could be obtained and, if necessary, the ships detained before they entered the Mediterranean. This detention was proposed at the Rome conference, and approved by the twenty-two or twenty-three nationalities officially represented. England and India alone voted against the proposal. If a ship had a disinfecting stove on board, a good doctor, and no dangerous case had recently occurred, then they would give free pratique. But if there had been cases of cholera on board two or three days previously, then the ship should be detained. Practically, he had found on inquiry that such detention would have the effect of stopping four or five English ships for four or five days each year. There was a great difference between this and the quarantines described and denounced by Dr. Vignard. Besides, England had herself just sent the ship *Neva* into quarantine for sixteen days at Southampton. (This assertion greatly surprised the English delegation, who had certainly not heard of the circumstance.) Dr. Proust went on to give further explanation, which tended to reduce the meaning of the word "quarantine" to method of observation and of disinfection, very different from what is generally understood by the term. Dr. Treile approved of quarantines, and maintained that they had saved Algeria from cholera in 1884.

Mr. Adolphe Smith arose to explain that the point at issue was the actual wording of the resolution. Dr. Proust might attenuate the meaning of the word quarantine in a very satisfactory manner, but this would have no effect whatever with the outside public. Hundreds of newspapers would publish the text of the resolution, but would not know, or would not have space to mention, the explanations given in the Section. The point was not what Dr. Proust might mean, but what the resolution meant; and the resolution undoubtedly meant that quarantine might be imposed even in the most salubrious of ports, for there was no port in the world which could be described as absolutely incapable of harboring imported germs of disease. Dr. Proust and several French delegates protested that they did not interpret the resolution in such a literal sense; but Mr. Smith, supported by the English delegates, persisted that this was the view the outside public, unenlightened by the discussions of the Section, would take of the matter, and that therefore he should be obliged to press the question to a division. Dr. Proust now, however, offered to withdraw the word "quarantine," and put "restrictive measures" in its stead. This, when taken in connection with the general tone of the discussion, was considered satisfactory, and it leaves for future congresses to discuss what restrictive measures may be imposed as a substitute for the old-fashioned quarantines. An amicable compromise being thus effected, the Section adjourned without a division. The following is the text of the original resolution and the

amendment proposed, and accepted by Dr. Proust and the entire Section: "C'est seulement alors que les ports présentent un terrain réfractaire à la pénétration des germes morbides exotiques on pourra supprimer complètement les dernières entraves quaranténaires." Altered to "les dernières mesures restrictives."

On Friday morning the members of the International Congress of Hygiene went to the Exhibition and examined the sanitary apparatus displayed there. In the afternoon, in Section 5, M. Maignen read a lengthy paper on water filtration. He suggested, as a test, that water should be mixed with a known microbe, and a guinea-pig or rabbit inoculated with the water. Another rabbit should be inoculated with the same water after filtration. If the former died, and the other did not, this might be taken as a proof that the filter was good. Dr. Macé had made experiments with the germ of anthrax in this manner, and found it did not pass through the "filtre rapide." The filter was equally efficacious in preventing the passage of metallic poisons, copper, lead, etc., in solution. Some little discussion ensued, during which preference for the porcelain filter was expressed by some of the speakers, though it works much more slowly. M. Maignen was thanked for his interesting communication, and the president of the Section concluded by saying that filters were always excellent at first; the difficulty was to discover how long they would last.

Dr. Girard (Rheims) opened a discussion on the supervision of meat, urging that diseased meat should be cremated; that this was the best means of preventing its being surreptitiously sold. He further urged that the rules for supervision should be the same in rural as in town districts. This proposal was adopted by the Section.

After a few words about syrup of glucose, Dr. A. J. Martin's report on river pollution was taken into consideration. There has been a great amount of legislation on this question in France. There were ordinances issued in August, 1669; in February, 1773; in June, 1777; and July, 1782. All these had the force of law, and all declared that refuse, filth, manure, etc., should not be thrown into rivers. These old laws were recently invoked (July 24, 1875) by a ministerial decision. Then there is the law of October 10, 1810, on manufactories, etc. The law of April 15, 1859, inflicts a fine of from 30 francs to 300 francs and imprisonment of from one to three months on those who throw into rivers chemicals that kill the fish. A ministerial circular, dated July 31, 1882, forbids pits or porous wells, by which subsoil waters can be polluted with the residue of factories. Nevertheless, all these enactments require to be codified, and, above all, more strictly applied. Consequently, Dr. Martin concluded that industrial residue of a dangerous nature should not be allowed to flow into a river or an underground watercourse. This can only be allowed when the residue has been so treated as to deprive it of all toxic, putrid, dangerous, or any other sort of matter that can alter the natural quality of the river water. The purification of industrial waters or residue must be rendered compulsory and executed according to approved methods. The purification by irrigation is the most perfect means of treating the waste water from mills, etc., containing organic matter. This must sometimes be preceded by chemical and mechanical processes, to render such waters fit for agricultural purposes. These conclusions were adopted, but a very lengthy discussion ensued as to who should be responsible for the application of such a law. If a manufacturer refused to purify his residue, should the state do the work for him and charge him with the cost? If so, what method would the state apply? Perhaps some antiquated expensive method—in a word, the state might blunder and put the manufacturer to unnecessary expense. As it was, many manufacturers had actually made money in seeking to prevent water pollution, for this had led to the discovery of advantageous methods of utilizing waste. M. L. Faucher, civil engineer, member of the Central Council of Hygiene in the department of the Nord, related that river pollution had produced typhoid epidemics in his district. Each manufacturer, however, denied that the waste was the cause, because they only partially polluted the rivers. It was as if one man had a pistol, another some powder, and a third a bullet, and each declared he could not possibly do any harm. Yet it was only necessary for the three to come together to be able to kill some one. This is exactly what happened in the river with the waste from factories, and now that it had been stopped in his district, typhoid fever had been stamped out. It

was ultimately decided that the authorities ought to carry out the necessary works if the manufacturers persistently refused to do so themselves.

In Section 4, on Saturday morning, Madame Tkatcheff read a most interesting and carefully prepared paper on the condition of the working classes in Russia. Irrespective of Siberia and Poland, she said, there were about 932,000 operatives employed in the mills and factories of Russia. The way a considerable proportion of these workers were recruited had a great influence on public health. Many of them were agriculturists who, being unable to earn enough to live, came to the industrial centers and worked in factories from September to February. They had no homes in those industrial centers, but slept very often in the factory itself, in the midst of the machinery, or in a sort of dormitory provided for them just above the works, and separated from the works only by a rude wooden floor, through which all the bad odors passed. Here the workers lay down on wooden shelves. They slept in their clothes, and at best had a little sacking. The shelves were placed one above the other, so that sometimes there was only a hundred cubic feet of space per person. All the inspectors appointed by the Government to inquire into these questions had complained of the dirt, overcrowding, and the promiscuity, for men and women often slept in the same dormitory. The hours of work varied from twelve to fourteen, and the food was altogether insufficient. The clothing was also of the poorest description. It was rare that a man could afford to wear leather boots, but contented himself with wrapping his feet in paper and rags and thrusting them in woolen shoes. Shirts were considered a vain luxury, and but for the sheep's skins, worn with the wool inside, the people would die of cold. This sort of life soon destroyed all sense of self-respect, and fearful immorality was the result. The migrations of villagers into towns for a short time each year had brought back syphilis to the villages, and there were some villages in Russia where every single inhabitant was syphilitic. In some departments ten per cent. of the recruits were syphilitic. There was but one redeeming feature: the Russian, however poor, always insisted on having a bath. He would as soon go without his food as go without his weekly bath. There were no statistics to show what was the mortality of the Russian working-class population, but the general mortality was sufficiently significant; it was 17 per 1,000 in Sweden, 24 per 1,000 in France, and 36.8 per 1,000 in Russia. Out of 1,000 deaths, the proportion of infants under one year was 113 in Norway, 190 in England, 216 in France, and 313 in Russia. The mortality among adults was equally high in Russia, and, taking the deaths occurring at ages varying from thirty to sixty years, the comparison was as the figures 11 for Norway, 13 for France, and 19.4 for Russia. Up to the year 1882 children five years old worked in factories. These children were sometimes syphilitic as well as the victims of alcoholism. There were no regulations to prevent the explosions of boilers, nothing to hinder accidents with machinery. Women had to suckle their babies in the passages of the factories; and as for benefit societies or anything of that description, it would be a mockery to speak of saving to people who are driven by starvation to put up with so fearful an existence. In the match trade 75 per cent. of the workers were children, and they employed white phosphorus. Yet there were men and women in Russia well acquainted with the progress accomplished in Europe, and some attempt had been made to imitate the good example. In 1882 a law was enacted forbidding the employment of children under twelve years of age, and limiting their work up to the age of fifteen to eight hours—that is, four hours, then an interval of three hours' schooling, and then four hours' more work. The law also forbids the employment of children in thirty-six different and dangerous industries, and this is three more than is the rule in most European states. Another law enacted in 1885 forbids night work for women and children, in weaving and spinning mills, but this law is as yet only applied in three centers. There is also organized, under the Ministry of Finance a system of factory inspection. Russia for this purpose is divided into fifty-nine industrial departments; and, as each head inspector receives 5,000 roubles and the sub-inspectors 3,000 roubles, it is anticipated that they will be able to render good service, and that it will not be easy to bribe them to neglect their duties. There is also a law to the effect that where there are more than a hundred persons employed in a factory

medical attendance should be provided; but it is physically impossible to apply this law, for there are only 18,000 doctors in the whole of Russia. Consequently, many factories have no medical attendant, and the lack of proper care in sickness is another cause of the high rate of mortality.

Madame Tkatcheff's paper, of which this is but a brief and incomplete summary, produced a deep effect. After a few questions had been put, Mr. Adolphe Smith rose and urged the Section not to rest satisfied with congratulating Madame Tkatcheff. She had given them a graphic and appalling picture of widespread suffering and human degradation. It was no use holding congresses if they did not exercise their undoubted influence to put an end to such abominations. He would suggest that the Russian delegation might prepare a report on the effect of the recent Russian legislation, and on the actual condition of the working classes in that country. This report could be presented to the London Congress, and followed by a resolution worded in the manner which the Russian delegates might think would have the best effect in Russia. Such a resolution, put to the entire London Congress, and adopted unanimously, as there was every reason to hope it would be, could not but have effect. There was no government so deaf as not to hear the voice of a congress representing the best elements of sanitary progress in modern civilization. In any case, it was impossible to sit still and make no effort to remedy a state of affairs which was a disgrace to our common humanity. The use of international congresses was precisely to bring international pressure to bear where there was a weak point in the armor with which Civilization clothed herself to war against disease and premature death. He therefore moved the following resolution: "That this Section invites the Russian delegates to submit to the International Congress of Hygiene, in London, in 1891, a report on the results of the new laws for the protection of labor, and a resolution for the amelioration of the material condition of the working classes in Russia."

This speech and proposal were warmly cheered, and the resolution was unanimously carried.

Dr. Dargelos read a paper on a method for rendering felt hat manufactory less unwholesome. M. Fisher brought forward some proposals for disinfecting night-soil on its passage to the sewers, and M. Maigen an invention for purifying sewer water and extracting therefrom the solid residue, the ammonia, etc. The Section, on the strength of these two papers, was asked to vote a resolution regretting that the proposed credit of 200,000 francs for experiments in this direction had been struck out of the French budget. Mr. Smith objected on the ground that the French budget did not concern an international congress, but only the principle at stake, and he thought we should all agree that all the governments, and not one single government, should be more liberal in such matters. The utilization of sewage was a problem that might necessitate expensive experiments, and the States of Europe and America should, by small subventions, encourage such experimental research. A resolution in this wider sense was thereupon unanimously adopted, and the Section adjourned.

On Friday afternoon some Sections met at two o'clock, but at four o'clock all the Sections met together in the grand amphitheatre for the final sitting. Dr. Brouardel, as president of the Congress, explained that the Sections had passed a number of resolutions, that the subjects to be discussed in each Section had been fully announced beforehand, and therefore each member of the Congress had enjoyed the opportunity either of supporting or combating any one of the proposals brought forward. Under these circumstances they might conclude that what the Sections had done had been well done, and now he would ask the Congress to approve by vote, and if possible without discussion, the decisions of the Sections. Dr. Martin then commenced to read upward of fifty resolutions. Dr. Brouardel soon discovered that a large number of these resolutions dwelt exclusively with French questions, and therefore did not put them to the Congress, but referred them back to the French committee. Most of the other resolutions of a general character were confirmed by a show of hands, though now and then there were a few opposing votes, and often a great number of abstentions. The fact was that many of the subjects were entirely new to a large number of the members, who had not been able to attend more than one Section at a time. Still, it was too late for discussion, and many

things were allowed to pass which will require revision. Many of the resolutions thus confirmed have already been given in describing the work of the Sections. To these I might add a resolution, very warmly applauded, demanding that an address be forwarded to M. de Freyinet, Minister of War, congratulating him on his recent measures on sanitation in the army. Other resolutions demanded a permanent inquiry into the cause of excessive infant mortality, a stricter control over midwives, the teaching of hygiene in schools, the publication of methods of water analysis, the creation of bureaus of hygiene and municipal laboratories in all centers of population, new laws enabling municipalities to compel householders to adopt the town water-supply, the abolition of all laws preventing cremation, the encouragement of cremation on battle-fields, the better inspection of pharmacies, etc.

The reading of these resolutions having taken up considerable time, the concluding ceremony had to be proceeded with very promptly, and Dr. Brouardel spoke for only a few moments. He announced that the next Congress would be held in London during the first week of August, 1891. The work of organization had already commenced, and the subjects to be discussed would probably be known in about six months' time. He thanked his colleagues from abroad for the excellent support they had given the Congress, and hoped the harmony which had prevailed during the week among the members of the Congress would continue to reign among the nations represented.

Dr. Roth, on behalf of the foreign delegates, wished to thank the president and the organizing committee for all they had done.

Senator Dr. Pacchiotti, in an enthusiastic speech, reproved the president for qualifying him as a foreigner. "The president," he exclaimed, "salutes the foreigners, but there are none in France. We are all at home in France. Here we meet each other, we live close to each other, we learn to love each other, we talk on the same subjects, we pass the same resolutions; we are not foreigners, we are brothers."

Mr. Shirley Murphy, in the name of the English delegation, rose to thank the French organizers of the Congress for the admirable reception they had prepared. He hoped to demonstrate the gratitude felt by the care they would take in providing hospitable entertainment in London. The cause they had at heart merited the support of all civilized nations. He only regretted that London was not a beautiful city like Paris, and that London did not possess a Brouardel. Nevertheless, he cordially urged all present to accept the invitation and meet again in England, and therefore he did not say *adieu*, but *au revoir*.

Mr. Shirley Murphy was loudly cheered, and the Congress was declared closed, amid cries of "*à Londres!*"

Though the official work of the Congress was thus brought to an end, some two hundred members met again on the following Sunday morning, and, led by M. Bechmann, engineer-in-chief of Paris, visited the palatial sewers that run from the Place de la Madeleine to the Châtelet. In barges and in a sort of tramway they traveled through underground Paris. The sewers were illuminated by many lamps and also by electricity. The barges were supplied with cushioned seats, the ladies came in elegant toilets, and, so that they should not soil their dresses, the steps down into the sewers were carpeted. As an engineering feat these palatial sewers, as they have been so justly described, are certainly most remarkable, and well worth a visit. From the Châtelet the members of the Congress were conveyed in comfortable brakes to the sewage farm of Gennevillier. At Clichy they stopped to see the pumping machines, which lift a third of the sewage and send it over the river in an iron pipe to Gennevillier, where it is used to irrigate 750 hectares of market gardens. The remainder will in course of time be sent to Archères and to Méry. In the meanwhile, two thirds of the Paris sewage still fall into the Seine at Asnières, and the members of the Congress were able to witness how it fouls the waters of the river. They then went over the sewage farm, admired the vegetables, ate some of the fruit, and drank the beautiful clear water derived from the sewage of Paris. It contained, they were assured, a smaller number of microbes than the best spring water, the Vannes water, supplied to the town of Paris. The Congress now proceeded to enjoy the excellent luncheon provided by the town of Paris at a restaurant in the little village of Gennevillier. The toasts were preceded by speeches of a particularly earnest and hearty character. Dr. Martin, as president, proposed that a crown composed of flowers from the sewage farm of Geme-

villier should be deposited by the Congress on the grave of M. Alfred Durand-Claye, the author of the scheme of which they had admired the result. He recalled that when, in 1878, Durand-Claye had visited Gennevillier, he had been mobbed by the inhabitants; now he was the hero of the place.

M. Emile Trélat, who could scarce control his emotion, drank to the memory of his old friend. Durand-Claye had been an eminent engineer; he had distinguished himself at college, everywhere; but what made him really great was the whole-hearted manner with which he had given himself up to his work. Around them at Gennevillier, every sod of earth, every flower, breathed his name. A man with two hearts—a heart in France and a heart in his native Italy—Paechiotti, had proposed that a monument should be raised in honor of Durand-Claye. As a Frenchman, he could but blush that a Frenchman had not first made the suggestion; but while blushing, he gladly followed the example set by his excellent Italian friend. M. Deligny, Municipal Councilor, who had worked fifteen years with M. Durand-Claye, spoke a few affectionate words in his memory; and then the Mayor of Gennevillier, in the name of the inhabitants, desired to associate himself with the project, and promised a free grant of land for the monument.

M. Bechmann, M. Durand-Claye's successor, and Dr. Henriot, mayor of Rheims, having spoken, there were loud cries for Dr. Bourneville, who in the National Assembly had carried the bill which legalized these irrigation works, and whose admirable report on "l'Utilisation agricole des eaux d'égout de Paris" should be studied by all who are interested in the subject. Dr. Bourneville, in his speech, paid a handsome tribute to the various international congresses of hygiene. It was their debates, their decisions, which had strengthened his hands and enabled him to obtain the sanction of the French Assembly. M. Durand-Claye had collected a splendid library on sanitary questions, and proposed to leave it to the museum of hygiene which he hoped the municipality of Paris would soon be able to create, and he called upon M. Deligny to press the matter forward.

M. Bonkowsky Bey, chemist to His Majesty the Sultan, in a few well-turned sentences proposed that the name of the ten agriculturists who first consented to utilize the Paris sewage-water at Gennevillier should have their names engraved on Durand-Claye's monument. Delegates from Mexico, Brazil, and Egypt having also expressed their sympathy, Mr. Adolphe Smith was again selected as spokesman on behalf of England and America. In the name of these nations he desired to participate in the centenary celebrations of 1789, a date to be ever as associated with the spread throughout the world of those principles of freedom which were the basis of true scientific research and knowledge. As representing the most liberal nations of the civilized world, he hoped America and England would always remain united with France in their forward march. He claimed for these countries the full right to participate in the honors to be rendered to the memory of Durand-Claye. He challenged the French right to monopolize this memory. Durand-Claye was a glorious example of the international character of sanitary science. He had never paused at a frontier line, but studied hygiene with equal assiduity in England, Holland, Belgium, even in Germany, availing himself of all the good ideas he could find in all countries. That library which he had so generously left to the town would be found to be an international library; and Paris was an international town, and hygienists of all countries meant to avail themselves of Durand-Claye's experience, and while inspiring themselves by his great works, claimed their right to contribute to the homage that would so justly be rendered to his memory. This speech was enthusiastically received. Dr. John H. Raueh, medical officer of health of Chicago, confirmed briefly in English the sentiments expressed, and promised to raise a subscription for the monument in America. Several hundred francs were at once collected among the guests, who, though they had started at nine in the morning, did not get back to Paris till five in the afternoon. Still the Congress was not quite over, for the next evening a hundred members, principally the foreign delegates, were entertained at a brilliant reception given in their honor at the Ministry of the Interior, by the minister, M. Constant.

Thus at last was this most animated and successful Congress terminated. I have given a very imperfect, incomplete account of the proceedings, but perhaps have said enough to show the interest and im-

portance of such congresses. Several subjects, notably the ventilation and heating of houses, so originally and ably treated by M. Emile Trélat and M. Somasco, I must leave for a separate study, and will attempt to describe the theories enunciated when dealing with the exhibits on these questions. But for a full account of the Congress it is best to wait till the official report, which will constitute a large and handsome volume, is published. This will probably be done at an early date, and will be sent gratuitously to all the members of the Congress. Those who were not members will probably be able to obtain the report by applying to the secretary-general of the Société de médecine publique et hygiène professionnelle, 28, rue Serpente, Paris.

ANSWERS TO CORRESPONDENTS.

No. 287.—The meetings are held in Newark. The secretary is Dr. A. Mereer, No. 31 Washington Street, Newark.

No. 288.—Since the year 1876.

No. 289.—We shall soon publish an article on the subject.

No. 290.—The author presented his observations as of physiological interest, and did not advocate their therapeutical application.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

A COMPARISON BETWEEN
MERCURIAL AND AVITREOUS THERMOMETERS.*

BY MORITZ IMMISCH,
LONDON, ENGLAND.

MEDICAL thermometry has not received the attention it deserves, and, though no doubt fully understood and appreciated by the few, it is totally neglected as a branch science of the medical profession by the many. Its immense importance in diagnosis and treatment is acknowledged by all, but, in order that the tell-tale thermometer should be a valuable guide to the medical man, it is important that the tale it tells should be rightly interpreted. Unless this is done it were better indeed not to depend upon thermometers at all. A thermometer presumably gives the temperature of the blood, and its readings are often taken as blood heat, whereas in reality it is not, and can not be anything of the kind. It gives simply the temperature of the part it has been applied to when the reading is taken. It depends entirely upon surrounding circumstances and accompanying conditions what relation the observed temperature bears to the actual temperature of the blood, which is really the point in question. The ability to correctly estimate these conditions at their proper value is only acquired by practice; but as a guide to every one who desires to become proficient in the use of thermometers it should always be borne in mind that the part to which the thermometer is applied is a radiating body constantly parting with its own heat to the surrounding atmosphere and other bodies in its vicinity not only by radiation proper but also by convection and evaporation. It is true that the circulating blood rapidly supplies fresh heat, but what is measured by the thermometer is not the blood heat, but the resultant of three things—namely, the real blood heat, the cooling process which is constantly active to lower the temperature, and the rate at which fresh heat is supplied. Any thing which favors radiation, convection, or evaporation must necessarily have a marked influence upon that resultant in one direction and the actual blood heat in the other direction. The rate of heat-supply acts in one direction or the other, according to whether it is above or below the normal. As an illustration of the difficulties surrounding this question the following experiment might be tried: Place a dozen correct thermometers in different parts of a furnished room, and in an hour or two you will probably not find two thermometers reading alike. All that is necessary for this experiment to succeed is that the air in the room should be warmer than the inclosing walls. The air of the room may safely be taken to be of the same temperature throughout. In consequence of the very small capacity which air has for heat, the mobility of its particles, the ease with which air of different temperatures intermingles, all justify the assumption that the air surrounding these thermometers is really of the

same temperature, and yet we find this difference in their readings, which may amount to two degrees or more. The observed variation is owing to the differing absorptive powers of the substances which happen to be in their proximity. That the observed differences are really owing to this can be easily proved by coating the bulbs of the thermometers with varnish, gum, or lamp-black, by which means the radiation is greatly increased and the difference in the readings becomes more marked.

Now, the human body is another such heat center continually parting with its own heat to the surrounding air and other bodies in its vicinity. The presence of moisture on the surface of the body, a draughty room, a damp bed, a cold wall, whether the surrounding air is cold or warm—all these circumstances have a marked influence on the reading of the thermometer.

Take two equally perfect thermometers both reading alike, one in each hand; leave them there inclosed and stand sideways in proximity to a wall, and in ten minutes you will be able to tell whether the wall is cold or not. Although the blood itself is of the same temperature in both hands, the hand which is toward the wall, if the latter happens to be cold, parts with its heat at a greater rate than its fellow and the thermometer reads lower in consequence. Take a thermometer in your mouth in a cold room and you can not get it up to the normal point, although, doubtless, your blood is 98.4° F. Stand in a draughty place and the difference is greater, because the head itself got chilled by radiation and the breathing of cold air. It even makes a slight difference whether the head is bald or protected by a mass of hair. Each of the influences tending to lower the temperature in itself may not be very important, but when all combine, each adding its own effect, the difference may amount to one degree or more. Without taking these circumstances into consideration and simply going by what the thermometer tells you would be very improper, and in that sense thermometry would be worse than useless.

There are certain properties which are common to all thermometers and which must not be lost sight of by any one who wants to use them professionally. Every thoughtful observer will have noticed that the time required for a thermometer to rise from one degree to another is very much shorter when the difference between the temperature which the thermometer may happen to possess and that temperature which it is intended to measure is great. As this difference of temperature lessens, the time required to move one degree becomes greater and greater. Take the temperature to be measured 105°. In that case it takes quite as long for the thermometer to accomplish the last half degree as it required to move from 90° to 104°.

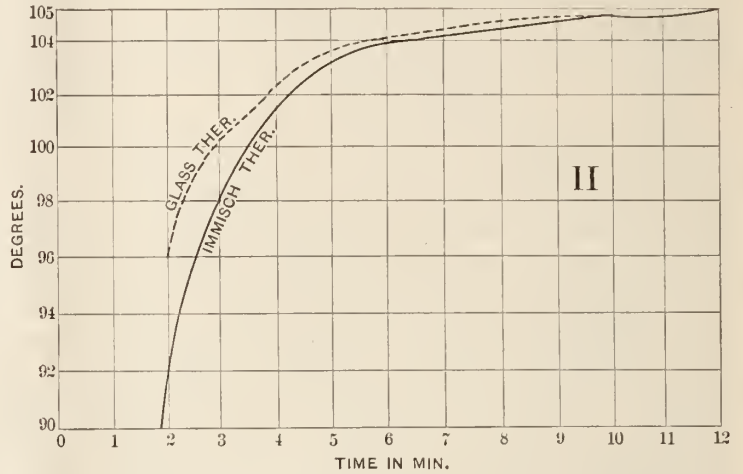
From a great many observations which I have made with different thermometers, all of which observations tally sufficiently close, I have prepared a series of diagrams. One of my objects was to compare thermometers of totally different make, and I used an "Immisch" thermometer alongside an ordinary clinical glass thermometer. The latter was not a self-registering one; both were verified at

* Prepared to be read before the British Medical Association at its annual meeting.

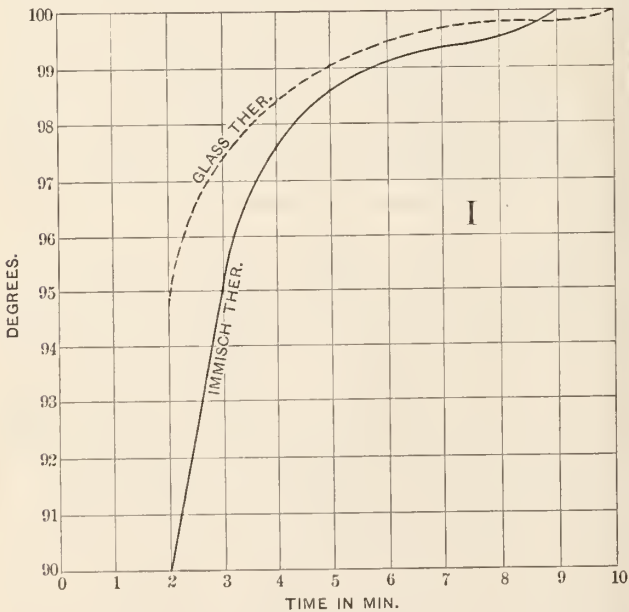
Kew Observatory. Both instruments were inclosed in a metal case filled with water. This metal casing was furnished with a glass cover to admit of the face of the "Immisch" thermometer being seen, and the stem of the glass thermometer projected from the case and was secured in one of the sides of the casing. The joints of the case were water-tight, to prevent any circulation taking place of the water inside the casing and the water-bath into which the casing was plunged. An assistant kept the bath in constant circulation by means of a rotating fan; a "Standard" thermometer and sundry taps were provided to enable him to keep the temperature of the bath absolutely constant for any length of time. Readings were taken every minute, and in some cases, as the diagrams will show, every five seconds. The diagrams thus plotted down clearly show that there is no appreciable difference between the two thermometers in point of time when the final heat was registered. In some instances the "Immisch" arrived there a little sooner, but in most cases the maximum was arrived at at the same time; but in all the observations the glass thermometer was in advance of the "Immisch" at the lower temperatures. We shall see later on that the converse of this feature is of the greatest importance and really constitutes a decided advantage of the "Immisch" over the glass thermometer.

Diagrams I and II represent what most frequently happened. The bath being at 100°, after three minutes the glass thermometer was about two degrees and a half ahead

These diagrams clearly show how easily a practitioner may be misled in pronouncing upon the merits of different instruments. If it is only a question of ascertaining what height a thermometer arrives at after three minutes of ap-



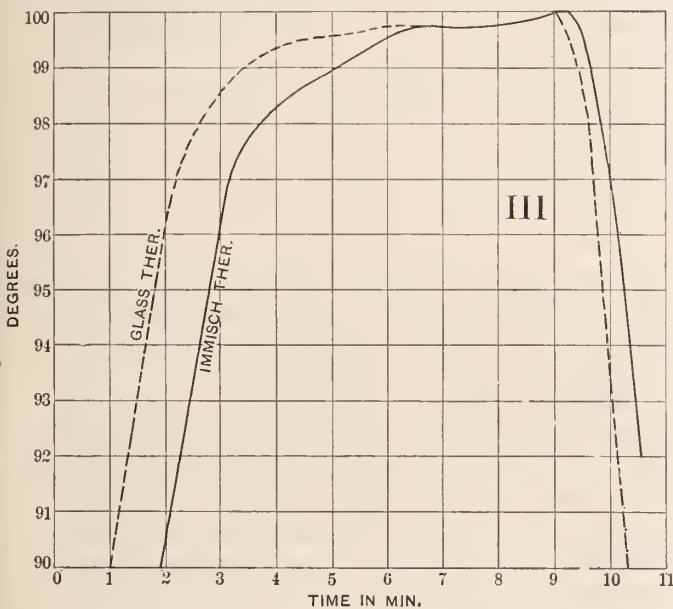
plication, the glass thermometer would have the advantage over the "Immisch"; but, if it is a question of ascertaining the true temperature of the patient, the apparent advantage disappears and even changes from one instrument to the other. The legitimate object of medical thermometry can never be attained by merely ascertaining what any thermometer shows after the lapse of three or four minutes. The instruments themselves vary and behave differently in this respect. Glass thermometers apparently alike show various degrees of sluggishness, owing to the thicknesses of the glass bulbs inclosing the mercury differing among themselves. But far greater errors—and this remark applies to all thermometers—are likely to occur through the cooling influences already named, and the effect which a greater or less circulation of the blood may have in supplying fresh heat at any rate which may be above or below the average. If the importance of these various influences is duly appreciated, it must be clear to every one that any reading taken, say, after three or four minutes is no guide whatever except to those practicing in hospitals, where the condition of the wards is expressly kept uniform, year in and year out, as much as possible. But even then it requires the experience of years to trust to this mode of taking readings. For outdoor practice it is highly improper to resort to it. When the practitioner is called upon to form an opinion of the patient's condition according to whether his thermometer shows one fifth or two fifths of a degree more or less, it is evident that readings taken after a certain fixed lapse of time of three or four minutes are quite useless, seeing that these readings may differ one or more degrees owing to conditions with which the patient has nothing whatever to do. It is, however, satisfactory that, as the diagrams show, there is no appreciable difference in the instruments themselves, of whatever make and construction they may be, in recording the true temperature of the part to which they are applied after a lapse of, say, nine minutes, and in an atmosphere of 65° or 70°. Six minutes may be taken as a safe interval, if a fourth or a half of a degree is added, according to the circumstances which affect the sluggishness of the instrument.



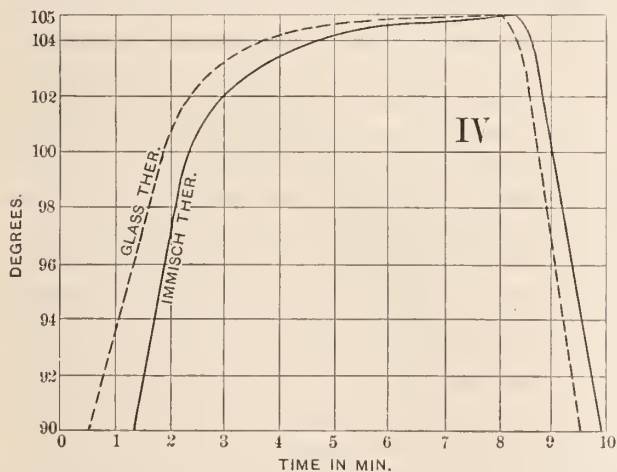
of the "Immisch," the former showing 95° and the latter 97.5°. This difference became less and less; after four minutes the difference was three fourths of a degree, and at six minutes the difference was one fourth of a degree; after eight minutes they stood equal, the whole being completed in between nine and ten minutes, the glass thermometer taking generally about half a minute longer to get to the maximum.

If it is considered that, even after such a reading has been taken, it refers only to the part to which the thermometer has been applied, and that we still have to exercise our judgment to determine what relation this reading bears to the actual blood heat of the patient, it is imperative that such reading itself should be without question. With an atmospheric temperature of 80° and upward, you get nearer the real blood heat in four minutes than in six minutes with a temperature of the room at 65°.

Diagrams III and IV refer to observations made with the heated box containing the two thermometers when at-



taining a true temperature of the bath. Being suddenly plunged into a bath of the temperature of the room, it is at once apparent that the time required for making these

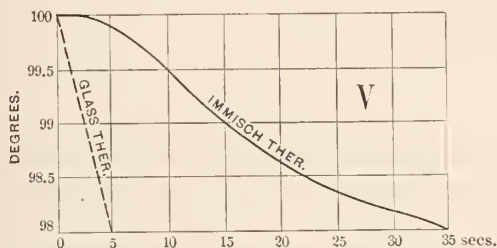


thermometers fall is just as short, or, in other words, they fall just as quickly as they rose when the difference of the temperatures was great. (See Diagrams I and II.)

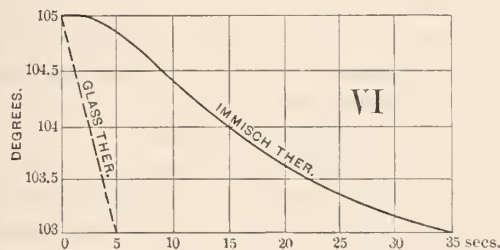
I must say a few words as to the apparatus chosen for the production of the diagrams. Objections may be raised because water was used for heating the instruments, whereas with a patient no water is present. Water has a great capacity for heat, and requires many more heat-units to raise its

temperature a given number of degrees than air, for instance. On the other hand, it is capable much more effectually to impart its heat to the instruments just because of its great capacity. In experiments with a box containing air instead of water, the time required by the instruments to record the temperature of the bath was more than three times as long. I chose, therefore, water as the medium, and of such a volume as closely to resemble the conditions obtaining with patients. In both cases the final temperatures are not attained before the lapse of nine or ten minutes. I therefore conclude that the conditions are conformable. Less water would have caused the maximum to be reached quicker; more water, slower than is the case with medical practice. The volume of water chosen was about one cubic inch and a half. The experiments can be easily repeated by any one who likes to verify the diagrams.

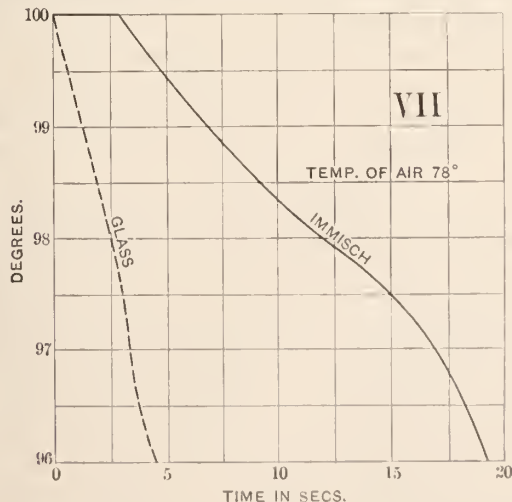
Diagrams V and VI refer to the two thermometers taken out of a warm bath and put immediately into another two



degrees lower; in one case the higher temperature was 100°, and in the other 105°. No water-jacket or box was used

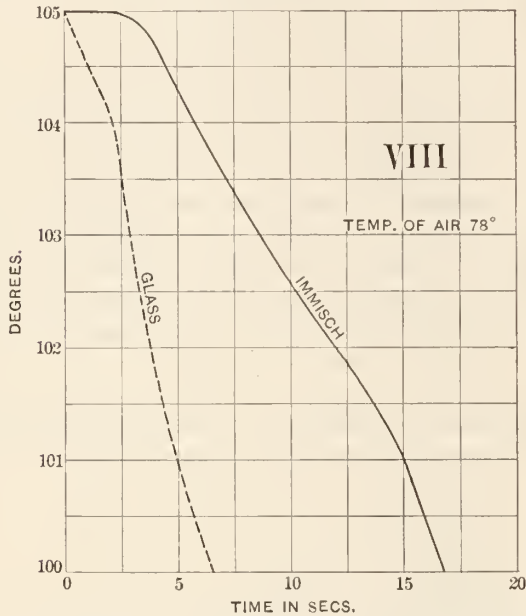


for this purpose, but the baths acted directly on the instrument. This was also done with regard to Diagrams VII



and VIII, which refer to the instruments being taken out of baths of 100° and 105°, respectively, and subjected to

the ordinary temperature of the room. Those last four diagrams were taken to show that an appreciable time elapses before the "Immisch" falls at all. I must remark, however, that in actual practice the stationary interval is longer



than in the diagram. This is owing to the instrument being wet when subjected to the air; and, although the precaution has been taken to dry them on a cloth after removal from the bath, this can not be done so quickly as to prevent a copious evaporation to set in, which we all know has a powerful cooling effect.

The "Immisch" thermometer is actuated by a "Bourdon" tube, which itself is surrounded by air inclosed in the case of the instrument. This air is warmed, and does not permit the colder bath or the colder atmosphere to affect the tube till the air itself is cooled first.

In Diagrams I and II we see that the "Immisch" was behind at the lower temperatures as compared with the glass thermometer; this was owing to the very same cause. The air had first to be warmed before the tube could be affected. The operation of cooling reverses this condition, and it is so far of great importance, as it shows on the one hand that a glass thermometer must be made self-registering in order that any reading can be taken at all; the "Immisch," on the contrary, can be withdrawn, and the pointer fixed after withdrawal. The operation of fixing the pointer takes less time than would elapse before the instrument begins to fall. Herein lies a distinct advantage which the "Immisch" thermometer has over the glass instrument. We can heat it to several degrees above the probable temperature of the patient before application. Two or three minutes would then suffice for the instrument to adapt itself to the real temperature of the part to which it is applied—to the axilla, for instance. The cooling, which takes place on applying the instrument, is counteracted by the instrument being warmer than the axilla, and we may be sure that the instrument has really parted with its excess of heat after two or three minutes. This, in my opinion, is the only legitimate way in which the time of application can be shortened.

The artificial heating is easily done by means of a lighted wax match. Care should be taken to heat both the back and the glass front—in fact, as evenly as possible, as otherwise the cold part would absorb the heat of the warmer portions of the instrument. A little management is, of course, necessary; but this is far easier acquired than is the case with many other instruments which medical men have to handle.

It goes without saying that the same thing can not be done with a glass thermometer; on the one hand we have seen that it must be self-registering in order to be used at all, but if made self-registering we can not overheat it before application, as in that case it would not accommodate itself to any lower temperature.

These diagrams are instructive in another way. They prove that any influence which causes the place to which the thermometer has been applied to cool to the extent of a quarter of a degree temporarily would retard the maximum reading by about two minutes. Not on account of the thermometer at all, because the instrument can not show more heat than is imparted to it, but on account of the axilla, or the mouth, or the hand, or any other part of the patient to which the thermometer has been applied requiring that time to rectify the disturbance.

Whenever the rise of temperature is so gradual as in point of fact it is with an axilla which has been partially cooled at the time of applying the instrument, it does not matter what sort of thermometer is used, as it is sure easily to accommodate itself to the gradual rise. If we had an instrument which instantaneously recorded from second to second the gradual rise of temperature of an axilla which had been temporarily cooled to the extent of half a degree, we should get a curve very much like that shown by our diagrams. But on analyzing these diagrams we find that both these thermometers, although differing so much in construction, are perfectly capable of accommodating themselves to the gradual rise, proving that an instantaneous thermometer, if any such existed, would have absolutely no advantage whatever over either of the two in question.

It is hopeless to get uniform diagrams from actual use with patients, as the conditions are subject to great changes; and I may now refer to a communication by a Dr. Makroeki, of Potsdam, to the "Deutsche Medizinal-Zeitung" of the 26th of March of this year. That gentleman gives, with the view of comparing three different thermometers (viz., Sack's so-called minute thermometer, Immisch's avitreous, and the ordinary glass thermometer), a series of readings—forty-three in all—half of which refer to ten cases with fever, and the other half to ten cases without fever. (See the table on the next page.)

The readings, originally Celsius, have been reduced to Fahrenheit. It is astonishing what a diversity of readings this gentleman gets with the three instruments. If diagrams were taken, some of them would be absolutely bewildering, and there are probably not half a dozen tolerably consistent. In Case 5 he gets, after five minutes' application of the minute thermometer, the same reading as he got after two minutes' application—viz., 97.16—and after ten minutes he gets 98.4; that is higher than he got with the

maximum glass one after ten minutes' application by as much as 0·6°. In the next case (6) the difference is the other way; here the maximum thermometer shows three quarters of a degree higher than the minute thermometer, both after ten minutes' application, making a difference of 1·3° in the two cases.

Cases without Fever.

NO.	SACK'S MIN. THER.				Immisch. 6 min.	Maximal. 10 min.
	1 min.	2 min.	5 min.	10 min.		
1.....	98·42	99·14	.....	.....	98·78	99·68
2.....	99·5	100·04	.....	.....	100·04	100·94
3.....	98·9	99·14	.....	.....	98·4	99·68
4.....	97·52	98·4	98·78	99·32	98·78	99·32
5.....	96·8	97·16	97·16	98·4	97·34	97·8
6.....	95·9	96·98	.....	98·57	97·7	99·32
7.....	98·6	99·14	.....	99·32	99·14	99·5
8.....	98·2	98·2	.....	98·6	99·4	99·14
9.....	97·8	97·8	.....	98·4	97·52	99·14
10.....	98·4	98·6	.....	98·6	98·4	99·32

Cases with Fever.

11.....	103·28	103·64	.....	104·18	103·82	104
12.....	102·74	103·28	103·46	103·64	102·92	103·46
13.....	103·1	103·46	.....	104	104	104·36
14.....	102·02	102·02	.....	102·02	102·92	102·92
15.....	98·6	100·04	.....	100·04	100·4	101·12
16.....	99·86	100·58	.....	100·94	100·58	101·3
17.....	100·22	100·76	.....	101·03	100·76	100·94
18.....	102·2	102·92	.....	103·64	103·28	103·46
19.....	103·1	103·82	.....	103·82	104	104·18
20.....	101·12	101·21	.....	101·66	100·94	102·02

In Case 14 the minute thermometer shows after ten minutes' application nine tenths of a degree less than either the Immisch or the maximum, the Immisch in all cases being applied during six minutes only; and so I might go on through the whole of his work. When it is considered that these enormous discrepancies occur under circumstances presumably alike, one naturally asks himself, What use is thermometry at all? If the article in question and these figures prove anything at all, it is the difficulty of applying thermometers, pointing to the necessity of care and circumspection, which have evidently been wanting in the work of Dr. Makrocki. In no case can it be considered that the question which constitutes the proud title of the article, "What is the best Thermometer for Clinical Use?" has been satisfactorily answered. The gist of his article is that the minute thermometer in no case shows the same temperature after one or two minutes as the maximum after ten minutes. It would, indeed, be strange if it did. He might have gone further and pointed out (Case 14) where the minute thermometer after ten minutes shows 0·9° less than the maximum; neither does the Immisch show after six minutes as high as the glass maximum after ten. Of course not. Nor would the maximum get as high in six minutes as an Immisch after ten.

Comparing thermometers can not be done on the patient, but such comparing must be done by some such apparatus which I have used and which is always uniform and under perfect control. A similar apparatus is used by the Kew authorities to test thermometers for verification. There are great pains taken at that establishment, which has a reputation for accuracy all over the world. Glass ther-

mometers are apt to change; the glass alters its texture with time in the most capricious fashion, and, as the volume of the mercury remains the same, the change in the glass must affect the scale of the instrument. This defect is much more noticeable when the thermometers are new, but, unfortunately, they very seldom last long enough to give them time to settle. Recent improvements in the manufacture of glass for thermometer purposes look promising, but have not cured the evil; the certificate still contains the cautionary advice to have glass thermometers tested from time to time. This advice being omitted on the "Immisch" certificate, it is to be presumed that the authorities have satisfied themselves as to their permanency. The "Bourdon" tube in the "Immisch" does not change. The expanding liquid acting on the tube bends it. The tube is really a spring, which in opening and contracting is always within the limit of perfect elasticity like the balance spring of a chronometer. This does, however, not absolutely prevent the instrument from going wrong when it happens to be badly made. It must not be forgotten that watch-work is required to transmit the motion of the tube to the pointer. This can not be done without some friction, which is only negligible when the workmanship is first-class. It speaks well, however, for the "Immisch" that eighty per cent. on an average receive perfect certificates, whereas the average of perfect certificates is less than twenty per cent. with glass instruments.

It is a fact, which has been recognized by many, that all thermometers act more sluggishly with healthy persons than when applied to a patient suffering from fever, and some practitioners take this feature of greater or less sluggishness as indications of the patient's condition. This is quite independent of the actual temperature of the patient, and has only reference to the rate at which fresh heat is supplied to the system, or, more correctly speaking, to the thermometer itself. The importance of this remark can easily be made manifest. Take a thermometer in your hand, and after ten minutes you will find it registering, say, 96°. Then 96° is the resultant of all the influences which affect the thermometer. Now take a sharp walk (or any other bodily exertion will do as well), apply the thermometer for the same space of time, and you may get 98°, or may even reach normal point; not because the real blood heat has augmented, but the increased circulation has overpowered the cooling influences and the second reading is a faithful record of the resultant under new conditions.

Long Intervals between Births of Twins.—Dr. Engström, of Helsingfors, describes, in the "Finska Läkare sällskapets Handlingar," January, 1889, three cases of twin labors, where the interval between the births of the twins was unusually long. In the first case the second child was not born till thirty hours after the first had been delivered. Uterine contractions had ceased, the membranes were ruptured, and the child, ten pounds in weight, was delivered by turning. In the second case the interval was twenty hours. The waters were fetid, yet the second child, which weighed nine pounds, was delivered alive, by the aid of forceps. In the third instance the second child, weighing five pounds and a half, was delivered twenty-six hours after the first. In all the above cases both twins were saved. An interval of even twelve hours is not frequent in twin deliveries.—*British Medical Journal.*

THE URETHROGRAPH.

A NEW INSTRUMENT FOR THE EXAMINATION OF THE URETHRA.

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In the treatment of urethral diseases the importance of being able to obtain reliable information regarding the caliber of the urethra, the presence or absence of strictures, their caliber, extent, and location, if present, as well as the location of painful spots, is self-evident. To obtain this information various instruments have been devised, but they are open to the objection that the results obtained by them are dependent so much on the skill of the operator that two persons examining the same urethra with the same instruments may arrive at different conclusions as to the condition of the urethra under examination.

What is wanted for the examination of the urethra is an instrument which will do for the urethra what the indicator has done for the steam-engine or what the sphygmograph has done for the pulse—an instrument which will make a record of the urethra at all parts, which shall be accurate and yet independent of the skill of the operator; a record which shall be the same whether the instrument is handled by the expert or by the novice.

Without entering into a discussion of the merits and demerits of the various instruments used in the examination of the urethra, I will describe an instrument which I have devised and called a urethrograph, which meets the requirements indicated above.

A brief report of this instrument has already appeared in an article on "The Diagnosis of Urethral Stricture of Large Caliber," published in the July number of the "Pittsburgh Medical Review." The instrument has since then been so materially modified that it merits a separate description.

It resembles closely a catheter inserted into a handle. Its anterior extremity, which is curved to permit of its introduction into the bladder, terminates in two jointed arms on either side, which present a smooth convex surface to the urethra. By means of a spring within the handle these arms are expanded until arrested by pressing against the urethra; the pressure exerted by these arms is uniform in all positions, and may be readily increased or diminished to any desired extent by means of a screw at the handle.

Beneath the handle there is a marking arm so connected with the jointed arms already mentioned that, as the latter expand or contract in following the irregularities of the urethra, the marking arm draws a line on a strip of card-board which is a reproduction of the contour of the urethra except that the irregularities of the urethra are magnified twice on the card-board. The card-board strips are marked longitudinally into millimetres and transversely into inches, so that at a glance the size and position of any portion of the urethra may be ascertained.

On the upper surface of the instrument there is an index which indicates in millimetres the circumference

of the urethra at the point where the jointed arms are in contact.

To use this instrument, it is inserted, with the jointed arms closed, into the bladder or, if the neck of the bladder is tender, as far as the prostatic urethra. Having the urethrograph introduced as far as desired, a strip of card-board is inserted into a slot beneath the handle. The diagram of the urethra is then taken by touching with the index finger of the right hand a movable pin which liberates the spring contained within the handle, expanding the movable arms at the extremity of the instrument until their expansion is arrested by the resistance of the urethra. The urethrograph is now withdrawn after the manner of withdrawing a sound, while the card-board upon which the diagram is taken is held stationary with the left hand. If desired, the card-board may be dispensed with and the condition of the urethra ascertained by simply observing the index on the handle of the instrument as it is withdrawn; but this method is open to the objection that one of the chief advantages of the urethrograph is dispensed with—that of furnishing a diagram of the urethra which may be examined at any time and kept for future reference or comparison with subsequent diagrams.

It may be mentioned here that on the back of these card-board strips a place is arranged for the name of the patient, the date, and any remarks the physician may desire to record.

Figs. 2, 3, and 4, for which I am indebted to Dr. Carington, United States Marine Surgeon to the Port of Pitts-

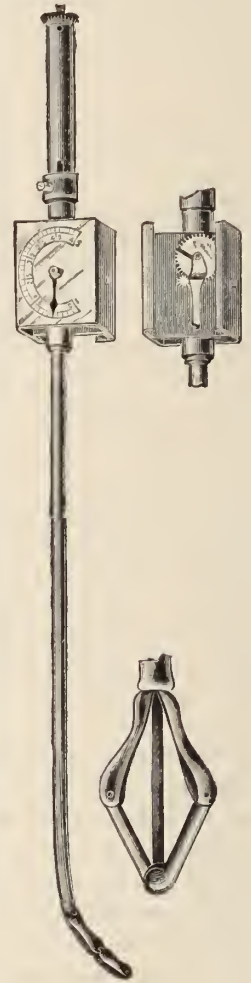


FIG. 1.

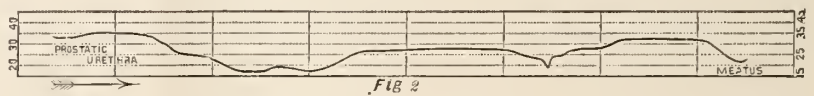


FIG 2



FIG 3

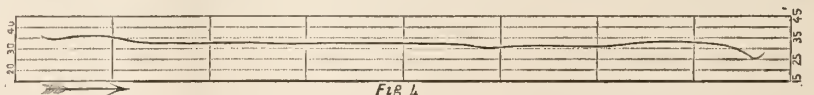


FIG 4

burgh, who had in charge the patient from whom the diagrams were taken, represent the condition of the urethra of a patient before and during treatment for stricture, as indicated by the urethrograph. Fig. 2 represents the urethra previous to any instrumental interference whatever. It will be noticed that the prostatic urethra, which is represented

to the left, is the widest portion of the canal, being a little over thirty-five millimetres in circumference. Anterior to the prostatic urethra there is a stricture about two inches in length, and situated at the bulbo-membranous portion of the urethra; this stricture at its narrowest part is about seventeen millimetres in circumference. From the situation of this stricture, occupying the curved portion of the urethra, it would have been inaccessible to the urethrometer, which is only used in the straight portion of the urethral canal. About two inches from the meatus there is another stricture, more distinctly defined but less in extent than the previous one. Anterior to this stricture the urethra becomes dilated, but not so much as at the prostatic portion. At the meatus a third stricture is found, having a circumference of twenty-one millimetres.

The caliber of the urethra having been ascertained, Holt's divulsor was introduced and the strictures were stretched to the full extent of the divulsor; immediately afterward the urethrograph was introduced and Fig. 3 taken. Comparing this diagram with the previous one, it will be noticed that the stricture at the meatus has only yielded two millimetres, while the stricture at the middle of the pendulous urethra has yielded about six millimetres. The stricture at the bulbo-membranous junction has yielded less than the one anterior to it, but this may be accounted for by its depth in the urethra, placing it beyond the point of maximum distension of the divulsor. It will be observed in this diagram that at no point has the divulsor dilated the strictures up to the same width as the adjacent unstricted urethra, so that we may readily draw the inference from this that Holt's divulsor, while materially aiding the dilatation of strictures, is insufficient of itself to obliterate them.

Fig. 4 was taken from the same urethra that the two previous diagrams were taken from, but not until a period of two weeks had elapsed, during which time the urethra was subjected to the introduction of sounds up to a size which was considered the full capacity of the urethra. It will be observed by this diagram that the urethra bears somewhat the appearance of a straight canal, that the stricture at the bulbo-membranous portion has disappeared, and the one in the pendulous portion almost so, while, in spite of all the stretching it has undergone, the meatus has only dilated four millimetres; surely this points emphatically to the fallacy of attempting to dilate strictures of the meatus. It will be noticed that under the use of the sounds even that portion of the urethra which was not considered as strictured has undergone some dilatation; to this the prostatic urethra is an exception, though it is still the widest part of the canal.

In considering this diagram the query arises, How near does the urethra, after instrumental treatment for stricture, resemble the normal urethra which has never been strictured? Is the prostatic urethra spindle-shaped, and the widest portion of the canal, as is shown here and generally taught? has the remaining portion of the urethral canal an almost uniform caliber? and is the meatus normally the narrowest part? These are vexed questions. The normal urethra is still debatable territory, but I venture to predict that the urethrograph, by presenting something tangible to

gaze upon and to form comparisons with, will yet shed light upon these disputed points.

In conclusion, I may add that the urethrograph, while designed for the examination of the urethral canal, is capable of modification so as to serve the same purpose in the examination of the other canals of the body that it does in the urethra.

HÆMORRHAGE FROM THE LARYNX.*

By WILLIAM PORTER, M. D.,

ST. LOUIS.

MANY objections have been urged against the use of the term laryngitis hæmorrhagica, and it is probably well to begin with a few definite statements which I believe are supported by facts.

Hæmorrhage from the larynx is seldom if ever unaccompanied by other symptoms or evidence of laryngeal disease, though sometimes these may have been previously unnoticed. It is rare, yet frequent enough to have been accurately observed and described. In most cases it is slight and, unless as a symptom of serious disease, is unimportant, yet in a few instances it has been profuse and alarming. Granting its frequency and the fact that it is generally in itself of little importance, it is still an interesting study, as an indication of pathological conditions and also because it is often erroneously credited to pulmonary lesions.

In examining the recent literature upon this subject, I can not but feel that careful observation will give it a more important place in the catalogue of symptoms of laryngeal disease. That it is not so is doubtless due to the fact that it has generally been found to be, when severe, but a symptom of some grave and definite morbid process, as of malignant, tubercular, or syphilitic character, and, when slight, to be of little importance.

Reasoning in the abstract, we might probably conclude that the larynx would be a favorite site for such local lesions as would result in hæmorrhage. The parts have free vascular supply, as has the pharynx or naso-pharynx, where hæmorrhages are not infrequent. The functions of the larynx require almost constant movement, and this is favorable to rupture of blood-vessels already weakened by disease. Such would be a reasonable hypothesis aside from recorded facts.

Against this supposition is the almost unanimous verdict of the members of the Section in Laryngology and Rhinology of the British Medical Association of last year. The president, in summing up the discussion, pointed out that there was an evident opinion among those present that hæmorrhages from the previously healthy larynx and pharynx were extremely rare—far rarer than was supposed by the profession at large—and that in any case of hæmorrhage into the upper air-passages of obscure origin it was probable that the hæmorrhage was due to pulmonary tuberculosis, even in the absence of physical signs of that condition.

I would not thoughtlessly dispute the conclusions of

* Read before the American Laryngological Association at its eleventh annual congress.

such high authority, and yet I must confess a doubt as to its entire accuracy. There might of course be on the part of some a disposition to hide behind technicalities. For instance, no one would oppose the statement: hæmorrhages from a previously healthy larynx are infrequent, for without previous lesion, small though it be, there could not well be hæmorrhage, which is a symptom of lesion. The thought intended to be conveyed, however, is plain enough, and while I grant that well-marked laryngeal hæmorrhage is rare, yet, as I have already intimated, I believe enough cases have been observed to make it worthy of study.

It seems to have been the experience of many observers that most of the cases of so-called laryngeal hæmorrhage are of pulmonary origin, or that pulmonary disease becomes evident sooner or later. It is generally true that bleeding through the mouth denotes pulmonary disease and is suggestive of grave conditions, but it is in some cases of this kind that the laryngologist is able to say that the hæmorrhage is not from the lungs, that it is purely local, and does not indicate a progressive course and fatal termination.

In twenty-two cases reported by six observers, most of whom are members of this association, phthisis followed in but three. The general tenor of replies to Gleitsmann's circular letter of interrogation upon this subject was "that hæmorrhage from the larynx can be regarded as a precursor of phthisis in exceptional cases only. The data furnished further tend to sustain the assertion made in this paper that many, if not the majority, of cases are not published, and that they are by no means so rare an occurrence as generally supposed." Regarding the first statement, I can say that three of the four cases of which I have notes have given no evidence of pulmonary disease, and am not sure but that in the fourth (No. 3 in the series) the pulmonary involvement has been the result of the hæmorrhage, as will be mentioned hereafter.

In this paper I will not attempt to present a full bibliography upon the subject, as this has been given by Dr. Gleitsmann in the "American Journal of the Medical Sciences" for April, 1885, with an additional series of cases compiled by the same author in the "Medical Record" for October 29, 1887.

Permit me, however, before mentioning several cases in my own practice, to recall a few well-marked ones which have been recorded by others.

Ten years ago Dr. J. H. Hartman, at the first annual meeting of this association, reported a case of laryngeal hæmorrhage from the rupture of a large capillary vessel upon the surface and about the middle of the left ventricular band. The patient had been singing, the hæmorrhage came on suddenly, several ounces of blood were expectorated, the next morning a recurrence, and two or three ounces of blood were again lost. The application of a strong solution of ferric alum was sufficient to stop the bleeding.

An interesting case was reported by Fraenkel in 1874 in which the patient, a woman in the fourth month of pregnancy, had repeated and severe hæmorrhage continuing at intervals for four weeks. As soon as the blood crusts which had formed on the laryngeal mucous membrane were re-

moved, parenchymatous bleeding from the cords and posterior wall could be distinctly seen.

During the past ten years a score of writers have contributed the history of cases to the literature on this subject, and of these I will mention but one which seems to me to be in every way typical. In the Section in Laryngology of the Ninth International Congress, Dr. Stockton, of Chicago, presented the history of a young lady, an opera singer, who suddenly lost her voice while practicing, and in a few minutes coughed up some bright frothy blood. The larynx was found coated with blood, and when it was removed, a small pulsating vessel was seen, and from it came the hæmorrhage, which was controlled by the galvano-cautery.

In my own experience I have records of but four cases of hæmorrhage from the larynx, not associated at the beginning with serious local disease or pulmonary tuberculosis. Elsewhere I have reported cases of pharyngeal hæmorrhage which were ascribed to pulmonary sources; but of necessity these are excluded here, though of the same general class as those under consideration and giving rise oftentimes to the same errors in diagnosis.

CASE I.—Miss K., aged eighteen, with good family history, had repeated hæmorrhages with some hoarseness, and at times soreness in the glottic region. After failing the first time to find any chest complication and nothing to indicate laryngeal bleeding except a chronic laryngitis, I saw her a second time while she was expectorating blood. The site of the hæmorrhage was seen to be a small perforating ulcer of the right ventricular band. The bleeding was, after several recurrences, finally controlled, and the laryngitis has under treatment been relieved. It is two years since I first saw Miss K., and there has been no return of the bleeding and no evidence of pulmonary disease. This case is also reported in the proceedings of the last Medical Congress, vol. iv, p. 45.

CASE II.—In January of the present year I saw Mr. G., a Government inspector, whose duties frequently required him to be in the holds of boats which are often damp and foul. He was forty-two years old, robust, and with a good family record. He said that for a year he had had recurrent hæmorrhages which he feared were from the lungs. He was slightly hoarse and was expectorating blood when I saw him. I found nothing to indicate lung disease, but in the larynx discovered the bleeding to come from the posterior part of the right vocal cord, which was red and swollen. I believe that all the hæmorrhage came from this part of the larynx, because it was entirely controlled by the direct application of iron, and the local inflammation has improved under the usual treatment.

CASE III.—Miss L., a pale, delicate-looking little lady of about thirty-five years of age, consulted me three months ago on account of almost constant cough and repeated though slight hæmorrhages existing for six weeks. There was no expectoration other than the blood and a little mucus, half a degree of fever, pulse slightly quickened, but no loss of flesh, and fair appetite. The family history was free from any trace of so-called hereditary disease. A careful examination of the chest gave negative results. The larynx was red and the mucous membrane over the left arytenoid cartilage, and indeed the whole left side of the larynx, including to some extent the vocal cord, appeared swollen. There was at this time some hoarseness, but no bleeding. Although the circumstantial evidence was in favor of laryngeal hæmorrhage, it was not until her third visit that I could affirm it. While waiting in my office the

bleeding returned. At once making an examination, I found that the hæmorrhage came from the suspected region of the larynx, especially from near the posterior attachment of the left cord. After this the bleeding returned a number of times, but has not appeared during the last two months.

A fortnight since, or nearly four months from the first hæmorrhage, I found evidence of pulmonary consumption, not at the apex, where phthisis as a rule begins, but in the right lung at the third intercostal space anteriorly. There was and is now slight dullness, diminished vesicular murmur, and prolonged expiration.

It has been shown by Dr. Alexander Hodgkinson ("British Medical Journal," September 15, 1888) that blood may pass from the pharynx into the larynx and down the trachea with the utmost facility. After an operation upon the pharynx he found the blood trickling over the interarytenoid fold, and apparently giving rise to no laryngeal irritation.

In discussing this subject before the Section in Laryngology and Rhinology of the British Medical Association, 1888, Dr. David Newman, of Glasgow, raised the interesting question as to whether or not hæmorrhages from the upper air-passages might act as a predisposing cause to tubercular disease. He reported a case which is so suggestive, taken in connection with Miss L.'s history, that I quote it. There was a "papilloma attached to the posterior pharyngeal wall from which repeated and sometimes copious hæmorrhage took place. The blood escaped by the nose and mouth, but on several occasions it flowed into the trachea and was subsequently coughed up. For six months these hæmorrhages were observed to occur at irregular intervals, and no symptoms developed nor could physical signs be discovered to support a suspicion of pulmonary disease, the patient being in perfect health with the exception of the growth in the pharynx. At the beginning of last year, however, the condition of the upper lobe became suspicious, and within three months marked signs of consolidation developed."

In the case of Miss L., it is true that the general condition pointed to something more than a recurrent hæmorrhage that was never very severe, but, sustained by Dr. Newman's experience, I can not but believe that this is one of those instances of "phthisis ab hæmoptoe," for it is a pathological fact that tubercular disease may follow a pulmonary hæmorrhage. "The inhaled blood is simply dead organic matter, offering no resistance to the action of specific micro-organisms, and, when it becomes infected, induces changes in the surrounding tissues which result in consolidation and terminate in tubercular phthisis." It may be that in this case the laryngeal hæmorrhage was but one of several factors in the development of the pulmonary condition, yet the bleeding was distinctly laryngeal and the pulmonary symptoms were not evident until some months after the hæmorrhage began.

CASE IV.—Mrs. R. was brought to me by her husband, himself a physician, on account of two slight hæmorrhages ten days apart. She was expectorating blood in small quantities when I saw her. Here there could be no doubt as to the nature or location of the lesions for the veins at the base of the tongue were distinctly varicose and one, and perhaps more, ruptured.

This case can scarcely be cited as one of laryngeal hæmorrhage, but I mention it for the sake of completeness. Mr. Lennox Browne believes these conditions to be associated with varix in other parts of the body, and often manifested to such an extent as to constitute a "truly hæmorrhoidal state of affairs." In confirmation I can add that there is a varicose condition of the veins of the left lower extremity in the case just reported.

Fortunately, I have not seen a case of marked submucous infiltration of blood in the larynx as described by Ingals, Schnitzler, Lewin, and others.

The subject is so interesting that any attempt at completeness or to include the study of laryngeal hæmorrhage from well-defined general disease, or those of traumatic origin, would extend this paper far beyond its limit.

I beg to offer the following conclusions:

1. Laryngeal hæmorrhage may occur from simple local conditions.
2. Unless associated with other and more positive symptoms, it is not indicative of pulmonary lesion.
3. It is possible, through the passing of blood from the larynx into the lungs, that pulmonary disease may be incited.
4. Care should be taken to distinguish between pulmonary and laryngeal hæmorrhages, not only for the sake of more exact treatment, but especially because of the more favorable prognosis that may be given in many cases of the latter condition.

2830 LOCUST STREET.

WARTY GROWTHS IN THE NARIS.*

By E. FLETCHER INGALS, M. D.,
CHICAGO.

A PECULIAR case of this rare affection has for some time been under my treatment, which I believe will be of interest to this association.

Mr. X., a gentleman forty-six years of age, came under my care three years ago, complaining of hawking and spitting, and hoarseness upon using his voice for a short time. These symptoms were found due to a recurrent pharyngo-laryngitis induced by thickening and deflection of the septum narium and swelling of the inferior turbinated bodies. He objected to operative procedures; therefore the treatment was limited to means for reducing the swollen condition of the turbinated bodies and relieving the congestion of the larynx. In a short time these measures were so far successful that he was relieved and had no more trouble for several months, but the following spring the difficulty returned, and was associated with a subacute tracheitis. I saw him occasionally for a few weeks, and subsequently he remained well, until he finally returned in March, 1888, complaining of similar trouble. At this time, in addition to the appearances formerly noted, I found a small, grayish, sessile, warty excrescence on the mucous membrane of the left naris, about a centimetre and a half within the nostril. To this I applied chromic acid, which completely removed it, and there had been no return at the end of five weeks, when he started for New Mexico. Upon his return, about three weeks later, I found the left nostril about one half occluded by

* Read before the American Laryngological Association at its eleventh annual congress.

a soft papillary growth, which sprang from the mucous membrane of the septum within about a centimetre and a half of the nostril. This was about seven millimetres in diameter by seventeen millimetres in length, and had a base fully as large as the diameter of the growth. I removed this with a snare and cauterized the base with chromic acid. A week later two or three small growths, grayish in color and hard to the touch (indeed, in all respects, excepting color, exactly resembling warts on the skin) were found—one on the floor of the naris, just within the line of union of skin and mucous membrane, and others on the anterior end of the inferior turbinated body. These were cauterized thoroughly with nitric acid. A month later two more warts were destroyed in the same way, and three weeks later two others had appeared on the septum, about fifteen millimetres from the nostril. These were also touched with nitric acid. A week later, finding that the warts on the septum and turbinated body continued to grow, I thoroughly cauterized them with the galvano-cautery. A month later other small warts had appeared in the same locality. These were cauterized with nitric acid, and when they reappeared were touched with a ninety-five-per-cent. solution of carbolic acid. Afterward, from time to time, chromic acid and nitric acid or acid nitrate of mercury were used to destroy the warts. Some were eradicated, others grew again, and still others were developed from the surrounding mucous membrane. In December, 1888, and the early part of January, 1889, I curetted out all of the warts to a depth of about three millimetres below the surface of the membrane with the galvano-cautery, but by the 19th of January another small wart had developed near by, and similar growths have continued to spring up at intervals ever since, so that altogether I must have destroyed twenty-five or thirty. Some places where the warts have been removed now appear perfectly healthy, and others show healthy cicatrices. I have not used the galvano-cautery often latterly because I did not wish to destroy so much tissue; besides, the results from it were not much better than from other caustics.

On the 20th of April the patient returned after an absence of two weeks, and I found, besides two or three minute warts on the septum and one of considerable size at the lower part of the nostril, a comparatively large mass of warty tissue at the anterior extremity of the inferior turbinated body which grew from a broad base about eight by sixteen millimetres in size, and was about six millimetres in thickness at its largest part. This was of a pink color, had a slightly raspberry-like surface, and the little nodules, which were somewhat lighter in color than the tissue between them, presented a few small red spots similar to those seen on ordinary warts. The smaller warts were touched with acid nitrate of mercury; the large mass I removed with the galvano-cautery, scooping out the soft tissue nearly down to the bone.

Professor Walter S. Haines has examined this and reports as follows: "The small tumor which you recently sent me has been carefully examined under the microscope conjointly by Dr. A. J. Ochsner and me, and we find it to be a papilloma similar in structure to a common wart. It consists of a central portion of connective tissue, sending off numerous delicate branches or papillae, which are covered with a somewhat prolific layer of epithelium. The latter, however, although abundant, is entirely superficial, not extending down into the connective tissue itself. We find no nests of cells, nor any other important histological elements excepting those mentioned above."

For several months preceding the middle of April, 1889, the warts have developed less rapidly and have had almost exactly the density and appearance of cutaneous warts, ex-

cepting that they were somewhat lighter in color on account of the moisture of the parts. The patient has never had pain in the growths, has no cachexia, is apparently in perfect health, and wounds of the parts heal kindly; therefore I do not think these growths of a malignant or lupoid character. He has several healthy children, is a gentleman with a clean history, and has no sign or scar indicative of specific disease; indeed, there seems every reason for believing that there is no such taint. At only one time have the growths resembled condylomata, but for a period of about fifteen months they have sprouted up and grown rapidly to a moderate size like cutaneous warts which they so closely resemble; therefore I believe them essentially the same as the verrucae so frequently seen upon the hands of children.

I have never observed this affection in other patients, and, though authors speak of papillary growths and condylomata in the naris, I have been unable to find a description of any case closely resembling this. I have had the library of the Surgeon-General's office carefully searched and can find records of only two cases at all similar to it, but in each of them there was only one growth which upon removal did not recur. The cases referred to are as follows:

First, "Condylomatous Polyps of Nasal Fossa," etc., by Dr. A. Testelin, "Jour. de méd., chir. et pharm.," Bruxelles, 1859, xxviii, p. 147. The growth was described as tongue-shaped, slightly thickened at its edges, like a cock's comb, about six centimetres in length and about six millimetres in thickness; soft to the touch; nowhere vesicular in appearance, and with no evidence of serous infiltration. Its color grayish-yellow, dotted with minute red spots. It was apparently attached, by a portion about twelve millimetres in length, to the border of one of the turbinated bodies. This growth seems to have been very similar to the largest growth, which was removed in the early part of the treatment, in my case.

Case second, "Papilloma of Septum," by H. T. Butlin, "St. Barth. Hosp. Rep.," 1885, xxi, p. 150. The author found a "warty growth" depending from the upper part of the front of the naris, nearly blocking the passage. He removed it with the galvano-cautery and it did not return. He says: "So far as the diagnosis is concerned it is easy, for the warty character of the tumor is distinctly visible as it lies in the interior of the nostril. It may, of course, be mistaken for a warty epithelioma, a disease even more rare."

I saw a warty growth similar to these in the person of an elderly lady about three years ago. It was about a centimetre in diameter, grew by a comparatively small pedicle from the mucous membrane of the anterior portion of the septum, and had the same general characteristics as that described by Testelin. I removed it with a steel-wire snare, and there has been no recurrence.

These cases seem to be of the nature of the large single warts or moles not infrequently met with on the back and sides. In the case of Mr. X. the growth resembled as closely as possible the apparently contagious ordinary wart known as *verruca vulgaris*. There were two or three very small warts when the condition was first noticed, but others have grown near these and upon the opposite surface, apparently

spreading from the original warts. Many times the growths have seemed to be eradicated, but the warts have appeared again in the same or other places until altogether there must have been twenty-five or thirty, varying in size from three to eight millimetres in diameter.

If any of the members of this association have seen similar cases, I shall feel under great obligations if they will tell me how to cure this so that the growths will not return. It now appears that my present line of treatment may succeed with the efficient aid of time, but I should like to escape obligations to this ancient remedy.

70 STATE STREET, CHICAGO.

LOCAL TREATMENT OF DIPHTHERIA.*

BY J. C. MULHALL, M. D.,
ST. LOUIS.

THERE is hardly a familiar disease concerning which the evidence of witnesses is more conflicting than in diphtheria, no matter from what standpoint it may be viewed.

Statistics based on mistakes in diagnosis, on the varying nature of epidemics, on faulty reports as to anatomical regions invaded, and on our general ignorance as to its method of diffusion, its ætiology and pathology, no doubt account for this confusion.

A vast number of agents have been employed in the local treatment of the disease with the usual conflicting testimony as to value.

It is, however, chiefly concerning the method used in their application that I desire to draw attention to a plan which for four years has yielded me gratifying results. When I originated this plan I took for granted several propositions commonly accepted by observers:

First, that the disease is a germ disease.

Second, that in the vast majority of cases the specific microbe selected the tonsils as their initial culture soil.

Third, that, unless checked by germicides, their colonization usually resulted in local putrefactive changes with general secondary septicæmia.

Fourth, that implication of the laryngeal or nasal chambers largely increased the mortality.

Fifth, that the disease is acutely adynamic.

It occurred to me, therefore, that, as was already largely practiced, the local treatment should be chiefly antiseptic, and that, as the disease spread rapidly and the salutary effect of antiseptic solutions in the upper air-passages, from anatomical reasons, could be of but short duration, this antiseptics should be, if possible, continuous. It will be readily admitted that it is of the utmost importance to maintain the patient's strength, and that, therefore, an element in ideal local treatment is, other things being equal, the employment of agent and method which least harass the child and which permit the recumbent attitude throughout. It suggested itself that a method which washed out from the throat the perverted secretions was preferable to that which invited a subject too young to expectorate to swallow them, and

which permitted the larynx to be bathed in them, as must occur in the use of a spray. The instrument with which these requirements can best be met is one which is found in nearly every domicile—namely, the common household syringe. It is a fact not generally known that if the end of such an instrument is introduced into the pharynx or into the back part of the mouth of a young child, the throat can be boldly flushed out without causing gagging, vomiting, coughing, or strangulation. Reflexly, the tongue immediately retracts and pushes the epiglottis down, making a water-tight glottis, and the child involuntarily ceases to breathe while the pharyngeal irrigation goes on. The first treatment, like any other first local treatment, in a young child is met with repulses, but even very young children soon learn to appreciate the agreeable effect of clearing the throat of foul and adhesive secretions, and soon quietly submit. With badly trained children, some of whom even repulse the nurse when she smears the nostrils and lips with a soothing ointment, I commonly use the rectal tip, or, better, a pewter tip which can be curved so as to be insinuated behind the last molars; but ordinarily I use no tip, simply the rubber hose, which is soft and has the further advantage of providing a larger stream. The physician himself carries out the first treatment as a demonstration to the nurse.

The child lies in a crib, one side of which is open; a rubber cloth conducts fluids into a vessel. The child's head is brought to the edge, the face turned toward the vessel, and the flushing is rapidly accomplished. The exertion, even of sitting up, is usually avoided. I direct the washing to be done every hour in the waking state, and to never permit the child to sleep three hours without it. I have used various antiseptics. I prefer a mixture of carbolic acid and compound solution of iodine properly diluted with warm water, which frequently, in addition, is saturated with boric acid. An ordinary water tumbler of fluid is consumed at each irrigation.

This plan is so far imperfect, since it does not provide for disinfection of the post-nasal region, and there are few cases of diphtheria which do not more or less implicate this region, rich in lymphatics and probably, next to the tonsils, most frequently the line of poison march to the system at large.

I have been amazed in consulting practice to observe the frequency with which the nose had been neglected until serious nasal signs—such as hæmorrhage, fætor, or total obstruction—had compelled some kind of attention, very often too late, for this triad of symptoms is most commonly the harbinger of death.

If we consider that the general practitioner is usually unacquainted with rhinoscopy, that even the expert has often failed in illuminating and seeing the nasal cavities of a young child, that the nose which the evening before seemed uninvaded is found in the morning to be seriously affected, it can hardly be gainsaid that prophylactic treatment of the nasal cavities in pharyngeal diphtheria is a wise therapeutic measure. Antiseptics of the nasal cavities can do no harm, while it may prevent or render mild invasion from the throat. Moreover, since for many reasons we can not in

* Read before the American Laryngological Association at its eleventh annual congress.

these cases treat the pharyngeal vault from the mouth, the anterior nasal cavities form ready avenues of approach for the disinfection of this region, and this is an integral part of my plan of continuous antiseptics. Let me repeat that, apart from this being a channel for the antiseptic treatment of the throat, I desire to strongly recommend to the profession that in every case of diphtheria, whether the nose be affected or not, the nasal cavities be kept sterile from the first. The method of accomplishing this varies. When it is clear that neither the post-nasal nor nasal chambers are attacked, the frequent insufflation of a non-irritating antiseptic powder may be sufficient. When uncertainty exists, or it is apparent that invasion has taken place, the nurse is instructed to wash out the nasal cavities with the same antiseptic solution as that employed in the throat, except that it should be far weaker, so as to irritate the nose as little as possible, and should seldom exceed in amount more than two teaspoonfuls for each nostril. The child, if possible, clears the nose and the antiseptic powder is at once forcibly insufflated. This, as the child lies on its back, gradually trickles into the pharynx and assists in the plan of continuous antiseptics. I commonly use finely powdered sulphur, or iodoform, or salicylic acid highly diluted with a trifle of cocaine, to prevent irritation.

This cleansing of the nose should not be done with the household syringe, for it throws a stream too small in diameter, and one far too forcible in careless or unskillful hands; nor does it permit of the regulation of the amount of fluid to be injected. The point of the ordinary glass syringe introduced into the nostrils of an impatient child is apt to produce an undesirable wound of the septum. Moreover, the caliber of the nozzle is far too small, permitting a slender, swift, painful, and inefficient stream.

The syringe which I show you is made for me by Mr. J. M. Good, a druggist of St. Louis, and fulfills, I believe, the ideal requirements of a syringe for anterior nasal medication in young children. Its capacity is about two drachms. It terminates in a bulbous enlargement which prevents a forcible stream, forms a shoulder to rest against the margins of the nostrils, and, since it terminates abruptly in the nozzle, can not enter the nose and abrade the mucous membrane. The diameter of the outlet is one fourth of an inch, thus permitting a large yet gentle stream. Before I invented this syringe I was in the habit of filing through a small glass syringe at its neck, where the diameter was large, thus avoiding the objections of the tip. The nozzle thus altered should be held in an alcohol flame to smooth away irregularities. The frequency with which the nasal cavities should be irrigated is a matter of individual judgment. Gently and quickly done with agents that are not painful, children readily submit to it—an important matter, for, whatever the plan of local treatment be on the adynamic diseases of childhood, that plan is best which, other things being equal, meets with least resistance. The rapid dissolution of the membrane is undoubtedly an element of successful local treatment, and I frequently make use of solvent remedies immediately succeeding the cleansing of the diseased surface. I have best succeeded with papoid.

There is but one method of local medicinal treatment

which can be efficiently pursued in the laryngeal diphtheria of children—that by vapors. At appropriate stages, the inhalation of the fumes of slaking lime deserves always to be remembered.

I beg leave to call your attention to a modification of the plan of Delthil, which I have hitherto employed in seven cases, with a final result of four recoveries and three deaths.

A small apartment in the house is selected, the carpet and other belongings removed; the room is thoroughly fumigated with sulphur, and a sheet saturated with a disinfectant spread across the doorway.

A gas-stove is introduced which will support two vessels. Into each is poured a half-gallon of water. Into each of these a half-pint of pine tar is stirred, and a tablespoonful of oil of turpentine. As steam is generated, water is occasionally added, so that the half-gallon mark is maintained. The amount of tar will be sufficient for the entire treatment, but to each vessel there is added every hour a tablespoonful of the oil of turpentine. I have not as yet observed strangury or the characteristic odor of the drug in the urine.

The air from outside should be admitted several times daily. The heat from the gas precludes this method in warm weather.

In three of my cases, with one death and two recoveries, I have been able to demonstrate membrane with the laryngoscope. The four children safely passed the laryngeal crisis with but little cough and no glottic spasm. In a boy aged four, seen with Dr. Holland and Dr. Frazer, of St. Louis, who died on the seventeenth day from exhaustion, but not the slightest dyspnoea was at any time observable, though total aphonia existed, and I was able to demonstrate to these gentlemen the presence of membrane in the larynx. The steam is generated day and night, and in one of my cases was continually done for six days.

In diseases in other parts of the body whose natural termination is in putrescence the surgeon, in anticipation of this event or on its actual arrival, thinks first of antiseptic measures. It is therefore probable that analogous measures are the best that can be employed in diphtheria. I have endeavored to describe a reasonable method of their execution.

The Functions of the Cerebellum.—"Is the cerebellum an organ for the storage of cerebral events which have become automatic? Do we first of all receive with the cerebral cortex and then practice with the same brain-bark, and afterward relegate to the cerebellum, as to a limbo, those things of which we are so tired of being conscious? Are all performances of the cerebral cortex conscious acts, and those of the cortex of the cerebellum unconscious? And so might questions, more or less unanswerable, be postulated without end. The functions of the little brain are scarcely known at all; even the dependence of the equilibrium on its existence may be called in question on the data supplied by pathology. It is perfectly certain that no obvious signs of nervous disease need exist when the lateral lobes are the seat of even extensive mischief. Some regard the cerebellum as the terminal organ of all visceral sensation, and on this assumption it has been thought that the curious perturbations in visceral epilepsy are to be ascribed to perversions of the vitality of the gray matter of the little brain. Anything is possible for the cerebellum. The most gifted imagination might guess strange things, yet pathology could perhaps find exact counterparts."—*Lancet*.

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THE PASSAGE OF THE VIRUS OF RABIES THROUGH THE
PLACENTA AND VARIOUS GLANDS.

ONE of the most brilliant professors of the school of medicine of Paris opened his course of lectures last year with a remark which has been widely repeated and which expresses the feeling of earnest men who are engaged in advancing the science of medicine to-day. Although some of the force of his words is necessarily lost by translation, yet, as nearly as we can recall them, they were as follows: "I think, considering the triumphs of science in this last quarter of the century, that it is good to live in these times, to those who interest themselves in the affairs of medicine." By these words he referred to the modern discovery of the presence of micro-organisms almost everywhere; to the knowledge acquired of the pathogenic influence of many of them; to the usefulness of many to the human race, which without them would not be able to subsist long upon the earth; to the recent knowledge of other pathological processes in the body more chemical or physicochemical in their nature than dependent upon the growth of microscopical parasites; and to the newly found methods of protection against morbid germs and the modern means, both surgical and medical, of removing from the human economy the effects of their injurious presence there. He showed a record of progress in the recent past which promised great results in the near future. One of the broad channels in which this progress is being continually made is the science of biology, which in a wide sense includes the relations of microscopical to human and other of the higher organisms, and of animal poisons to a healthy economy. This brings us to the subject of our article.

The fact that morbid germs of many varieties can live in human tissues and circulate in the blood is now beyond discussion, but the fact that they can also pass through the unbroken epithelial and membranous structure of certain glands and parenchymata, and be secreted with the normal products of such glands and parenchymata, has not until quite recently been proved. Not only has the virus of rabies been found to be secreted by the mammary glands in animals having that disease, but it has also undeniably passed through the tissues of the placenta of the rabbit and of the guinea-pig from the maternal blood to the fetal, and caused the death of the offspring *in utero*. Roux, who is so well known in bacteriological circles through his connection with the Pasteur laboratory, has endeavored to obtain this result, but without demonstrative success. Perroncito and Carita, however, have been more fortunate, and their experiments are recorded in the "Recueil de médecine vétérinaire" for 1887, No. 13. The latter practiced

intracranial inoculation of rabietic virus upon a pregnant rabbit shortly before the end of her period of gestation. Five days later the animal was delivered of a litter, of which four were dead and one was living, and the last also soon died. Four days after this the mother died of the paralytic form of rabies. Now comes the practical demonstration. With the brains of two of the still-born young two healthy guinea pigs were inoculated, of which one died of ordinary raging hydrophobia. Another pregnant guinea-pig was inoculated in the same manner as the first one, brought forth two living young two days later, and died nine days after the inoculation. Soon afterward the young both died, without very pronounced rabietic symptoms, however, but the brain of each was used as material for the inoculation of a rabbit and a guinea-pig. The former succumbed in eleven days, the latter in fifteen days, to clearly pronounced rabies, thus showing plainly that the mother of the two young guinea-pigs had transmitted the disease to her offspring yet unborn, and that they in turn had infected the rabbit and another guinea-pig with the original disease.

Some time ago Pasteur stated that the salivary glands were not the only ones whose secretions contained the rabietic virus, and that the lacrymal glands and also the pancreas secreted products containing the virus. Recently this list has been increased, and the mammary glands are now known to secrete the virus, to furnish poison with the food. Nocard, who reports his experiments in the same journal, tried four times to impart rabies to healthy animals by using the milk of rabid animals, and succeeded once. He took a few drops of milk from a nursing bitch that died of rabies, mixed it with two or three drops of water, and injected it into the anterior chamber of the eye of a rabbit, and the rabbit died of rabies about six days afterward. Roux also had one successful experiment among many. He inoculated a rabbit by trephining with a fragment of a lacteal gland of a suckling rabbit that died of rabies, the fragment being triturated in some of the milk of the dead female. After twenty-eight days the inoculated rabbit sickened and in two days more was dead of rabies. A still more important observation of this transmission was made with human milk by Bardach at the bacteriological institute in Odessa. A woman who had been nursing a child for six months was bitten by a mad wolf, and at the time of her admission into the hospital was suffering with hydrophobia. Four rabbits were inoculated with her milk by trephining. One died of rabies after eleven days. With its brain two other rabbits were inoculated, which died of typical rabies twenty days later. The three other rabbits of the first series all died of indubitable rabies in fifteen or sixteen days after the inoculation. To make assurance doubly sure, the experimenter inoculated a dog with the brain of one of the three rabbits, and with the brain of the rabid dog infected a rabbit again, thus establishing the genuineness of the disease of which the infecting agent was primarily contained in the woman's milk. An interesting fact remains to be chronicled. The nursing child of the woman who died with hydrophobia was still healthy four months and a half later.

In all these experiments and observations the morbid germ had penetrated and traversed organic tissues of a certain degree of compactness and density, in which there exist no apertures or natural orifices suitable to the passage of those germs. It must be admitted, therefore, that they forced a way for themselves through tissue everywhere continuous—the placenta in some instances, the mammary gland in others. It can not be urged from this fact, however, that the virus of rabies is amorphous, chemical, and soluble, instead of being of definite form and insoluble—in other words, consisting chiefly of microbes; for other well-defined structures, such as leucocytes and red blood-corpuscles, have been seen to force a passage through continuous tissue. Although the micro-organism of rabies has not yet been isolated, there are weighty reasons for believing that it exists—reasons as good as those that made Leverrier believe that the planet Neptune existed before Galle turned his telescope upon it to discover it. This is not the occasion to enumerate those reasons, but it may be said that most pathologists admit the probability of the early discovery of the micro-organism. No doubt exists, however, about the passage of another micro-organism through the mammary glands. The *Bacillus tuberculosis* is eliminated with the milk of tuberculous animals, and multiplies in the organism of the child that consumes it. Here is one of the recent discoveries included among those to which Professor Bouchard's remark, quoted in the opening paragraph of this article, is applicable. From a biological point of view, it is interesting to note how this micro-organism acts in order to preserve itself and to multiply in the organism of the animal; from a hygienic and pathological point of view, it is necessary to know this fact in order to guard against the encroachments of this same morbid germ. In rabies, as in tuberculosis, there is a certain danger in using the milk from the infected animal, although the danger seems at present more remote in the former than in the latter.

From the foregoing we conclude that the virus of rabies (almost certainly a micro-organism) is eliminated in the milk as well as in the saliva, the tears, and the pancreatic juice of rabid animals; that the presence of this virus in milk is comparable to a certain extent with that of the *Bacillus tuberculosis* in the milk of cows and of women; that the presence of these germs in milk constitutes a fact of the highest biological, hygienic, and therapeutical importance; and that, if the child mentioned in the account of the nursing woman bitten by a mad wolf did not die of rabies, it was because the virus did not find in the gastro-intestinal tract of the child an environment suitable to its development, as it might have found had it been injected directly into the tissues. But we have as yet only entered upon our knowledge of microbiology, and no doubt there is many a surprise reserved for us in the near future.

WAKEFULNESS IN NEURASTHENIA.

A WIDE range of opinion on the management of this condition found expression at a recent meeting of the Epidemiological Association. The use of drugs, with the exception of

sulphonal, perhaps, did not find much favor with the members. Some of them had found that their patients of this class slept when they were at the seaside, while others recommended the Colorado atmosphere. Some patients had been found to be able to sleep at sea, but not on land. The weight of evidence seemed to favor the resort to mountain air for patients who were anæmic, with a presumption in favor of sea air for those who were plethoric. Dr. Solly, of Colorado Springs, has found that a large proportion of anæmic neurasthenics find sleep on the mountain heights, but this can not be said of the entire class. It is not improbable that other conditions besides those of climate enter into the account where the patient travels from our Eastern cities to the Rocky Mountains in pursuit of sleep. The jaded matron leaves the worries of the household, and the business man, broken down by the rush of daily cares, finds many things changed besides the atmosphere among the far Western altitudes. Still, as a rule, the climate gets all the praise when an improvement takes place. Business men from the East report a larger percentage of recoveries than the matrons, however, probably because fewer of their anxieties can follow them. Improvement in the assimilation of food, it should not be forgotten, goes a great way toward sleep-production in those who are affected with derangement of the nervous system; and this is one of the frequent accompaniments of any change of scene and environment. Not that there is always any marked increase of appetite or in the amount of food taken, but there is an appropriation of the food by the nervous centers, to their consequent strengthening. It is often a prominent feature in neurasthenia that the food may be taken in and digested fairly well, but stops short somewhere in its distribution to the tissues and is largely wasted. Ordinarily, when this waste ceases there is a corresponding abatement of wakefulness and other neurotic symptoms.

MINOR PARAGRAPHS.

PESSIMISM AS A NEUROSIS.

IN a recent lecture delivered by Dr. A. Deschamps, of Paris, to the faculty of Clermont Ferrand, he successively reviewed all the neuroses—stopping at hypnotism—and showed that the neurasthenic was a social invalid who appeared at the commencement of the nineteenth century; scientific discoveries, the revolution that electricity and steam have made in industry and commerce, the equality of individuals before the law, and the power of money, had progressively developed the ambition and desires. The derangement of the sensibility and weakening of the will were the two principal causes of the general disease that had produced the abuse of science, the loss of the ideal, the crisis that traverses religions, and the influence on literature and art inspired by Schopenhauer, Tolstoi, Darwin, Herbert Spencer, and Stuart Mill. The physical causes were located in hereditary or acquired faults, such as alcoholism, hysteria, epilepsy, and morphinomania. There were, then, two kinds of pessimists—those by temperament and those by taste. The neurasthenic existed in letters, not in science. He asked if the century did not lean to fatality. Was not pessimism the crisis? The pessimist, convinced of the inutility of effort, preached general renunciation; consequently the exercise of the will mastered him. The question was solely, to conquer that patho-

logical state of the senses, that the will should triumph. He would not modify actual, social, and physiological conditions from top to bottom, but he would transform them by education and hygiene; the muscles should be toughened and the mind strengthened. To children he would give an education of the mind and body, physical exercises holding a very large place. Such exercises would fortify the entire economy and permit our sons and daughters to resist the crisis we were traversing, and definitely triumph over it. These suggestions of Dr. Deschamps's are not without value; and probably many, without having made any particular analysis of the question, have considered pessimism as, if not a mental alienation, a neurosis. Why Darwin and Herbert Spencer are in this company is not clear; and, while Germany, Russia, and England are represented, what modesty has prompted the omission of the country of Descartes, Bayle, Gassendi, Voltaire, Diderot, Baudelaire, Coppée, and Leconte de Lisle? Another question arises, that of whether firm muscles and a well-regulated digestive system would have made these hierarchs of pessimism optimists.

AN ASSOCIATION OF FRENCH MEDICAL JOURNALS.

A SYNDICATE has recently been formed in France by the editors of many of the medical journals. Desirous of knowing somewhat more of the limitations of this syndicate than we could gather from the printed reports, we addressed ourselves directly to Dr. Auvard, editor of the "Archives de toxicologie," and one of the syndicate's founders. From his courteous reply we gather that, although the society has been formed for the protection of the common and individual rights of its members, the powers conferred upon them by the French law have not yet been, and probably will not be, examined until such a time as one of their members is attacked. Neither has it been decided in what manner an unworthy member shall be eliminated, although a vote of the majority will probably decide the matter. "There are therefore in this society, as in all others newly formed, many *lacuna*, but the ultimate good obtained more than counterbalances the *desiderata*," says Dr. Auvard. At present the society has no other force than that formed from the aggregate power of its members. The laws of the society are twelve in number, bearing upon the conditions of government and membership. Founders and titular members enjoy the same rights and privileges. In order to become a member it is necessary to be a physician; to be an owner, director, or editor of a medical journal, or delegated by the latter as a representative; to be presented by two members of the association; and to be elected in assembly by a majority of the members after hearing the deductions of a report drawn up by a member other than either of the two who proposed the candidate.

Absent members can vote by correspondence or by proxy. The association is governed and represented by three syndics eligible to re-election at the expiration of their annual terms of office. The present syndics are Dr. Cézilly, Dr. Cornil, and Dr. De Rause. Meetings are held three times a year.

THE BRITISH DEGREE IN STATE MEDICINE.

ACCORDING to the educational number of the "British Medical Journal," nearly all the examining bodies of Great Britain and Ireland grant special degrees in public health or state medicine. The Royal College of Physicians and the Royal College of Surgeons hold examinations, consisting of two parts, in July and December. Candidates must be at least twenty-three years of age before admission to part first, and at least twenty-four years of age before admission to part second, of the examination; and they must be registered as qualified practitioners.

Both examinations may be taken in the same month. Part I consists of: 1. Physics in its application to health, with reference to (a) warming and ventilation; (b) water-supply, sewerage, and drainage; (c) sanitary construction. 2. Meteorology in relation to health. 3. Chemistry in relation to the examination of air and water. 4. Microscopical examinations as applied to air, food, and water. 5. Geology in relation to drainage and water-supply. 6. Statistics in relation to health. Part II: 1. The origin, growth, and prevention of disease: (a) the special pathology of endemic and epidemic diseases; (b) the influence of climate, season, and soil; (c) the effects of unwholesome air, water, and diet; (d) diseases of animals in relation to the health of man; (e) the influence of occupation and lodging; (f) isolation, quarantine, disinfection, and vaccination. 2. Sanitary work and administration: (a) the health requirements of houses, villages, and towns; (b) the sanitary regulations of households, establishments, and occupations; (c) the prevention and control of epidemic and endemic diseases. 3. Statutes and by-laws relating to public health. 4. The duties of sanitary authorities.

THE KÜSTER-DOLBEAU OPERATION.

DR. E. LAPLACE writes in the "New Orleans Medical and Surgical Journal," for June, favoring the employment of Küster's modification of Dolbeau's operation for vesical calculus and for the removal of foreign bodies from the urinary bladder. This procedure consists in a paraprostatic section of the urethra with subsequent dilatation of the incised urethra and neck of the bladder. The perineal incision is dilated to the size of a No. 8 Simon's dilator, which is sufficient to admit of the introduction of two fingers for exploratory and cleansing purposes. A certain proportion of the foreign contents of the bladder can be extracted by the fingers; what is too large to be brought out in this way can be readily managed with the ordinary surgical forceps. Dr. Laplace reports his experience in one case, in which the perineal wound permitted of the passage of urine until the tenth day, when it closed; on the twenty-sixth day the wound was fully healed. Although the operation is but little known, it has been performed often enough to demonstrate the dilatability of the prostatic urethra with ease and impunity. Dr. Laplace thinks that this operation will be found to be safe and easy where foreign bodies in the deep urethra and bladder require surgical interference.

THE JOHNS HOPKINS UNIVERSITY.

PRESIDENT GILMAN has authorized the announcement that this university will be opened on October 1st, and that there is no foundation for the rumor of its financial difficulties. The salaries of the president and professors have not been cut, and several new appointments have been made. While it is true that the income from the Baltimore and Ohio Railroad bonds has been cut off, yet there is an accumulated income from former years, the receipts from tuition average \$40,000, and \$108,000 is available as an emergency fund during the coming three years. Within six months the university has received \$300,000, and other gifts are expected. The hospital funds are distinct from those of the university, and are so invested that the income is an assured one.

PROLONGED GESTATION.

WILL widowhood prolong the period of gestation? A discussion before the German Obstetrical Society has elicited views, on the part of some of its members, giving an affirmative response to that inquiry. A commission has been appointed to

collect the evidence, said to exist, that pregnancy may last for 320 days, or ten months, especially in the case of widows. Dr. Olshausen declares his opinion that 160 days should stand as the minimum limit of pregnancy, and that the maximum should be raised to 320 days. The Imperial Civil Code gives 300 days as the maximum figure.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 17, 1889:

DISEASES.	Week ending Sept. 10.		Week ending Sept. 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	53	7	55	14
Scarlet fever.....	24	3	22	2
Cerebro-spinal meningitis....	0	0	1	0
Measles.....	7	1	11	0
Diphtheria.....	62	12	61	16

The Continental Anglo-American Medical Society will hold its first general meeting at the Grand Hotel, Paris, on Monday evening, the 30th inst. The honorary presidents, one of whom is expected to take the chair, are Sir Spencer Wells, Sir Joseph Lister, Dr. Richard Quain, Dr. Benjamin Ball, Dr. C. E. Brown-Séguard, Dr. P. Ricord, Dr. J. S. Billings, Dr. For-dyce Barker, and Dr. S. Weir Mitchell. The meeting will be followed by a dinner.

The Medico-chirurgical College of Philadelphia.—Dr. Ernest Laplace, of New Orleans, has been appointed professor of pathology. Dr. Samuel Wolfe, of Skippack, Pa., will fill the chair of physiology for the coming year.

The American Academy of Medicine.—The next annual meeting will be held in Chicago, on the 13th and 14th of November.

Change of Address.—Dr. Valentine Mott, to No. 62 Madison Avenue.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 1 to September 14, 1889:*

By direction of the Secretary of War, a board of medical officers—to consist of VOLLUM, EDWARD P., Colonel and Surgeon; McELDERY, HENRY, Major and Surgeon; MATTHEWS, WASHINGTON, Major and Surgeon; and MERRILL, JAMES C., Captain and Assistant Surgeon—is constituted to meet in New York city on the 1st day of October, 1889, or as soon thereafter as practicable, for the examination of assistant surgeons for promotion, and of candidates for admission into the medical corps of the army. The board will be governed in its proceedings by such instructions as it may receive from the Surgeon-General. Par. 1, S. O. 203, A. G. O., September 2, 1889.

JANEWAY, JOHN H., Major and Surgeon. With the approval of the Secretary of War, the leave of absence granted in S. O. 52, July 29, 1889, Division of the Pacific, is extended two months. Par. 1, S. O. 206, A. G. O., September 5, 1889.

CLEARY, P. J. A., Major and Surgeon, is hereby granted leave of absence for two months on surgeon's certificate of disability. S. O. 59, Headquarters Division of the Pacific, San Francisco, Cal., August 27, 1889.

EWING, CHARLES B., Captain and Assistant Surgeon, is granted leave of absence for twenty-one days, to commence on or about September 21, 1889, provided that at that time the post surgeon now on leave has returned to duty. Par. 5,

S. O. 201, Headquarters Division of the Atlantic, Governor's Island, New York, September 4, 1889.

BANISTER, W. B., First Lieutenant and Assistant Surgeon, is granted leave of absence for fifteen days. Par. 2, S. O. 82, Headquarters Department of Arizona, Los Angeles, Cal., August 23, 1889.

By G. O. 69, A. G. O., August 31, 1889, the garrisons of Fort Laramie, Wyoming, Fort Hays, Kansas, and Fort Lyon, Colorado, will be withdrawn, and the posts named will be abandoned as soon as it can be done with due regard to economy.

WALKER, FREEMAN W., First Lieutenant and Assistant Surgeon. By direction of the Acting Secretary of War, the leave of absence on surgeon's certificate of disability, granted in S. O. 92, April 20, 1889, from this office, is extended one month on surgeon's certificate of disability. S. O. 211, A. G. O., September 11, 1889.

WALKER, FREEMAN W., First Lieutenant and Assistant Surgeon, by direction of the Acting Secretary of War, is relieved from duty in the Department of Texas, and will, upon the expiration of his present leave of absence, report in person to the commanding officer, Jackson Barracks, Louisiana, for duty at that station, and by letter to the commanding general, Division of the Atlantic. Par. 2, S. O. 212, A. G. O., September 12, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending September 7, 1889:*

NASH, F. S., Passed Assistant Surgeon. Detached from the Dale and ordered to duty in the Bureau of Medicine and Surgery.

RUSSELL, A. C. H., Passed Assistant Surgeon. Ordered to the Naval Hospital, Yokohama, per steamer of September 28th.

HALL, C. H. H., Passed Assistant Surgeon. Detached from the Naval Hospital, Yokohama, on reporting of relief, and to return home.

WHITE, S. S., Assistant Surgeon. Detached from the Naval Hospital, New York, and ordered to the Minnesota.

STONE, E. P., Assistant Surgeon. Detached from the Minnesota and to wait orders.

BRYANT, P. H., Assistant Surgeon. Detached from the Ajax and ordered to the Naval Hospital, Norfolk, Va.

WENTWORTH, A. R., Assistant Surgeon. Detached from the Naval Hospital, Norfolk, Va., and to wait orders.

Society Meetings for the Coming Week:

MONDAY, *September 23d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *September 24th*: New York Dermatological Society (private); Buffalo Obstetrical Society (private); Medical Society of the County of Lewis (quarterly), N. Y.

WEDNESDAY, *September 25th*: New York State Medical Association (New York—first day); New York Pathological Society; American Microscopical Society of the City of New York; Auburn, N. Y., City Medical Association; Medical Society of the County of Albany; Philadelphia County Medical Society; Berkshire, Mass., District Medical Society (Pittsfield).

THURSDAY, *September 26th*: New York State Medical Association (second day); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private); Cumberland, Me., County Medical Society (Portland); New London, Conn., County Medical

Society (extra—New London); Pathological Society of Philadelphia.

FRIDAY, *September 27th*: New York State Medical Association (third day); Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

Proceedings of Societies.

MEDICAL SOCIETY OF VIRGINIA.

Twentieth Annual Meeting, held in Roanoke, on Tuesday, Wednesday, and Thursday, September 3, 4, and 5, 1889.

The President, Dr. E. W. Row, of Orange, in the Chair.

Man and his Development was the subject of the annual address, by Dr. THOMAS J. MOORE, of Richmond.

The Status of Cocaine in Surgery was the title of a paper by Dr. JOHN A. WYETH, of New York (present by invitation). After a note or two on the history of cocaine as a surgical anæsthetic, in which he accorded to Dr. Karl Koller, now of New York, but formerly of Vienna, the credit for its introduction into ophthalmic surgery, and to Dr. J. Leonard Corning, of New York, the credit of its practical application to other branches of surgery, he remarked first upon its dangers, due to idiosyncrasy, etc. Its dosage was uncertain, differing widely, not only in different individuals, but in the same individual at different times. He spoke from personal experience and observation. The general rule should be to begin with the minimum dose, gradually increasing it, always watching the pulse, face, respiration, and pupil. In small doses it increased the number of respirations, and was a cardiac stimulant; in large doses it arrested the heart in diastole and the action of the respiratory muscles. Cocaine was never applicable to children under ten or twelve years of age. In his several hundred applications in adults, in all parts of the body, he had several times observed pallor of the face and fainting, but they had been due most probably to the patient's being overcome by the sight of blood, etc. In some, however, they had been due to absorption of the drug. Exhilaration was not an uncommon symptom, and in rare cases it increased to boisterousness. In one instance convulsive movements had occurred, opisthotonos being rather well marked. In another case a convulsion occurred fourteen hours after a gradual injection of thirty minims of a four-per-cent. solution of cocaine (one grain and a half). In many cases, when it was not applied about the eye, dilatation of the pupil occurred, indicating absorption by the blood. For hypodermic purposes he used twenty grains of cocaine and three grains of boric acid dissolved in an ounce of distilled water—approximately, a four-per-cent. solution. A more decidedly aseptic solution was one in equal parts of distilled water and saturated solution of salicylic acid. Cocaine should always be dissolved in water free from lime. In operations upon the extremities, the circulation might be temporarily arrested. In amputation of the last phalanx of the finger, one might first immerse the hand for half an hour in a 1-to-2,000 solution of corrosive sublimate. It was best not to apply Esmareh's bandage to the finger, but to constrict it with a piece of rubber tubing. Direct injections (in the line of incision) retarded union to a slight degree. Hence the indirect method (by injections about the nerves at the base of the finger) should be employed when possible, although this method required a little longer time and a little

more of the cocaine solution. Just before applying the rubber, the smallest-sized hypodermic needle should be inserted through the skin on the lateral aspect of the dorsum of the digit, about an inch from and on the distal side of the ligature. About two minims should be injected, and the needle pushed a quarter of an inch farther, and two minims more injected, and so on until the needle-point rested just beneath the skin on the plantar aspect of the finger, when the same quantity was to be injected. Thus one half of the finger was injected, and the operation was immediately repeated on the other half—the entire procedure occupying not more than thirty seconds. A smarting, burning pain was felt as the fluid entered. The tourniquet should be tightened at once, thus holding the solution in place for absorption, which might be hastened by massage over the injected area. Insensibility supervened in about two minutes. Usually about fifteen minims were sufficient, but thirty minims might be thus used safely. The operation being finished, the band should be loosened for only a minute, which restored the circulation, and (under sublimate solution) the wound would bleed freely, thus giving escape to whatever of the solution the arterioles might have absorbed; but, of course, a certain amount was carried into the general circulation. The rubber should be tightened again for two or three minutes, the sutures inserted, and the dressing applied. Gradually the general circulation should be accustomed to the cocaine by alternately loosening and tightening the tourniquet. The heart and nerve centers might be overwhelmed if the entire excess was suddenly let loose into the general circulation.

The advantages of the direct method were rapidity of anæsthesia, the small quantity of cocaine used, and escape of much of the solution through the wound of incision. This method was preferable for incising felons and removing diseased nails, foreign bodies, etc. Indeed, any procedure where the necessary anæsthesia could be obtained by not more than a drachm of a four-per-cent. solution might be safely done with this agent by the direct method. In operations upon the trunk, the immediate absorption of the solution rendered greater precaution necessary. For instance, if a fatty tumor was to be removed, the needle should be inserted into the deeper layers of the skin (not the subcutaneous fat) along the line of proposed incision, and half a minim or a minim injected: the needle should be advanced a quarter of an inch, and the injection repeated, and so on, as far as the needle would reach from the original puncture. The injections should be repeated, if necessary, for a length of three inches until anæsthesia was established. The anæsthesia was evident by the pallor of the overlying cuticle. The skin should be divided through the middle of the anæsthetized line, and the dissection continued laterally until pain was experienced. Insensibility often spread an inch or more on either side of this line. Half a minim or more should be injected at all sensitive points in the line of incision. Since scars were to be avoided, cocaine was not so free from objections on the face and neck as elsewhere. In eye surgery the uses of this agent were too well known to require remark. In the buccal cavity it had a wide range of application. Tumors from half an inch to not more than an inch in diameter could be excised painlessly. Small epitheliomata or suspicious ulcers were painlessly removed from the tongue when five to twenty minims of a four-per-cent. solution were injected beneath and around their bases. He had twice dissected out ranulae successfully. Complete cleft of the soft palate in the adult could be closed painlessly by applying the solution to the mucous surface with a brush. Cocaine was in every-day use for the larynx, nose, and naso-pharynx. For internal urethrotomy, regardless of location, he rarely employed general anæsthesia now. The urethra having been disinfected with boric-acid solution (gr. x

to ʒj), he injected ʒj-ij of a four-per-cent. solution of cocaine with the ordinary syringe. At the end of a minute or so all of the cocaine solution was allowed to run out of the urethra that would run out. If the operation was to be in the membranous portion, Otis's long-curved tube was passed into the part, and from twenty to thirty minims were injected. For the introduction of the sound on the third day after urethrotomy, one should be careful not to over-distend the canal with the preliminary cocaine solution; about a drachm of the solution was then as much as should be used. For bladder examinations cocaine was very useful. Circumcision in adults no longer required general narcosis. The penis having been constricted near the pubes, the prepuce should be pulled forward and the hypodermic needle inserted at the free border in the middle line on top, between the mucous and cutaneous layers. Then the point should be carried back as far as the proposed line of section, and one minim of the four-per-cent. solution forced out. The needle should then be withdrawn half way and carried forward again to the right and left, and a minim forced out for every quarter of an inch of the line of section. On account of the sensitiveness about the frænum, it was best to inject two or three minims here. In Levis's operation for hydrocele, the point where the trocar was to enter should be cocainized. If the hydrocele was small, Volkmann's operation might be done with cocaine anæsthesia. In the open operation for varicocele, cocaine was not sufficient; nor was it sufficient for external urethrotomy, cystotomy, hernia, etc.; but small hæmorrhoids might be injected or cut away after cocaine injections. Cocaine was sufficient also for fissures and ulcers of the anus and rectum, and for single and superficial anal and rectal fistulæ.

Dr. HUNTER MCGUIRE, of Richmond, did not think that Dr. Wyeth had dwelt sufficiently on the dangers of cocaine. The speaker had used this remarkable agent almost every day for the past five years; but he had come very near killing one or two patients with it, so uncertain was its paralyzing effect in some cases, which cases could not be distinguished until the danger was recognized to be at hand. In one of the journals he had read that Dr. Sims had injected a few minims of a twenty-per-cent. solution of cocaine hydrochloride into the male urethra, and in twenty minutes his patient was dead. The speaker had cocainized a great many children without observing the very serious effects referred to by Dr. Wyeth; in fact, they seemed to stand cocaine as they did chloroform anæsthesia—very well. But there were objections to cocaine. Undoubtedly it interfered with the repair of wounds by the first intention. During the session of the society two years ago, in Richmond, he had heard a distinguished authority in such matters—then a resident of New York—affirm that a cocaine habit, in the sense in which the term habit was applied to the whisky habit, the morphine habit, etc., could not be established. But he was certain he had seen a case or two of the cocaine habit in patients who had come under his care.

Dr. WYETH indorsed everything that Dr. McGuire had said. In fact, the dangers of the indiscriminate use of cocaine were very considerable. He had not meant to imply in his paper that the danger of cocaine, when used with children, was in the drug itself, but in the imperfect manner in which it was generally administered to them, because of their struggling to resist its administration, and the peculiar feeling of loss of sensation in the part, which frightened them.

Medical Reforms, with Special Reference to the Profession of Virginia, was the subject of the President's address. He advocated the establishment of a general hospital, to be sustained by the State, like the asylums. But he thought that matters of professional interest connected with the management of such an institution should be placed under the control or

direction of the Medical Society of Virginia. In other words, he thought that the medical affairs of the State should be directed by the medical men of the Commonwealth, just as its legal affairs were by the legal men, etc. The medical profession had shown its ability to manage such matters as belonged to it, as evidenced by the excellent work done by the Medical Examining Board of Virginia—the creature of this society. The insane hospitals and like institutions should be more directly under the supervision of this society, so far as the medical affairs connected with them were concerned. It was a duty of the society to set to work to secure for the State Board of Health an annual appropriation from the State sufficient to pay all its necessary expenses, for it appeared that the law establishing the board, some seventeen years ago, very foolishly concluded with some such proviso as: "Provided the said board of health shall not be an expense upon the State."

Croupous Pneumonia.—An appointed discussion on this subject was opened by Dr. B. L. WINSTON, of Hanover Court-House, who would confine his remarks to uncomplicated cases. The diagnosis was not difficult, although sometimes the disease escaped detection unless resort was had to the physical signs. Pain was probably never present unless more or less plenisy complicated the pneumonia. Rusty-colored sputa, though pathognomonic when seen, did not by any means occur in the majority of cases, according to his experience; and on this point he thought the text-books should be corrected. The causes might be classed as specific, exciting, and predisposing. The view that pneumonia was due to a specific organism did not meet with common approval. He thought that pneumonia was not simply a local inflammation of the lung, but an expression of a general disease; and pneumonia deserved no higher classification than the intestinal ulcers of typhoid fever. Croupous pneumonia was not produced by extension of inflammation, but, in such cases, lobular pneumonia was the result. It was not produced by inhaling irritating gases, nor by traumatism, nor by "cold," as other inflammations of the air-passages were. It was a self-limited disease, and frequently occurred as an epidemic. The common asthmatic tendency could not be due to the height of the fever, nor to cardiac weakness, nor to the amount of lung consolidated (for the amount invaded was often very small). It was at least certain that the cardiac failure in no way corresponded with the severity of the other symptoms. It seemed to the speaker that the tendency to heart failure, which was the most alarming symptom in uncomplicated cases, was due to a morbid agent acting on the nerve centers. But the exact cause of croupous pneumonia was a subject for further investigation. The germ theory might or might not be true. The predisposing causes were age (under sixty years), the male sex, the negro race, certain diseases, such as typhoid fever, winter and spring seasons, etc. The exciting causes were, in general, such things as tended to lower the vital powers—such as exposure to inclement weather, insufficient clothing, neglecting the wearing of flannel in winter and spring, etc. It was more common South than North, pneumonia being almost unknown in the frigid zone. During the winter and spring almost every article of food had the stamp of age upon it; and it seemed more probable that the character of food then taken, when the vital powers were at their lowest, contributed most largely to the development of the disease. As to treatment, almost every drug had been tried; yet the mortality among adults was second only to that from consumption. A certain author abstracted from five to ten ounces of blood on the fourth or fifth day, when the heart was on the eve of being overpowered by the pneumonic toxic matter, but the speaker thought stronger evidence needed to justify resort to bleeding on such occasions, although there might be times when venesection was

useful. He also thought large blisters of doubtful propriety, although he had seen blisters relieve pain. Calomel had no place in the treatment of croupous pneumonia. Aconite in the beginning, and quinine, given early, as an abortive, might be useful. But he had got the best results when he had given the least medicine. Hot poultices, opium to relieve pain, stimulants when needed, food, hygienic measures, and, above all, skillful nursing, would be all that could be of use in uncomplicated cases.

Dr. H. C. BECKETT, of Scottsburg, thought that the specific cause of croupous pneumonia was undetermined. No age had a notable proclivity to the disease, and no age was exempt. It rarely occurred in children under five years of age. It was perhaps most frequent between the ages of twenty and forty and after sixty. In adult life it occurred in males three times as often as in females. In females it occurred most frequently at the catamenial periods. Outdoor laborers were more liable to it than indoor workers. Habitual alcoholic drinkers, malarial subjects, convalescents from severe acute diseases, etc., were most liable to it. Erysipelas, measles, diphtheria, small-pox, etc., were predisposing causes. Traumatism, especially in the aged, and a previous attack of pneumonia, were also predisposing causes. It occurred more frequently in the Middle and Southern States than in the Northern. It often prevailed as an epidemic in the mountainous regions of the South. The first five months of the year were its season. Thus it was seen that all things predisposed to pneumonia that depressed vital action. Dr. Shaw, of St. Louis, believed that perturbations of the vasomotor center in the medulla caused pneumonia by impressions conveyed through nerves connecting this center with the stomach. As to treatment, stimulants or depressants should be used as required. If both lungs were involved, so as to leave little breathing surface, it was proper to bleed. In such cases venesection afforded immediate and remarkable relief. Large hot poultices over the lungs reduced blood-pressure, while the heat stimulated the heart. Aconite was preferable to veratrum as a cardiac sedative, but he preferred acetanilide as the antipyretic, to be followed by quinine, which latter he considered the sheet anchor in pneumonia. He usually prescribed five grains every four hours until the fever broke. In the second and third stages he generally used ammonium carbonate, and digitalis also. The early administration of a large dose of calomel was useful. Opium was useful to allay pain and restlessness. Expectorants had no place in the treatment of pneumonia. Blisters at the beginning of the third stage hastened resolution. Alcohol was essential as a food and to sustain the heart. Many believed that the disease was contagious, and that four days was the period of incubation.

Dr. LEWIS G. PEDIGO, of Roanoke, spoke of *Sedative Doses of Calomel in Acute Croupous Pneumonia*, referring to doses of thirty grains and upward. He gave a history of the use of this treatment in various acute diseases by a few members of the profession for years past, and then explained the method of administering the drug. He reviewed the condition of the secretions and the various indications of treatment in pneumonia, gave a systematic and detailed account of the numerous and apparently diverse effects of the large doses of calomel, classified these effects, and showed how they were all dependent on two general principles—namely, stimulation of the secretions and a sedative influence on the nerves. He argued the adaptability of these effects to the chief indications in pneumonia. His entire remarks were based on clinical experiences, and one case was briefly reported to illustrate the treatment advocated. The important effects alleged were the promotion of the salivary, gastric, hepatic, and intestinal secretions, unloading of the portal circulation (followed by improved digestion and assimilation), increased and improved action of the

kidneys and skin, loosening of the bronchial and pulmonary secretions, relief of cough, lowering of temperature, and promotion of sleep.

Dr. BEDFORD BROWN, of Alexandria, gave a *Résumé of his Personal Experience of Forty-one Years in the Treatment of Croupous Pneumonia*. During this period he had seen four or five different methods of treatment adopted and practiced, and finally discarded. The depletory plan had at first been used in every case, then in only certain cases, and finally it had been entirely discarded. Then came the mercurial plan, in which calomel in small doses, with Dover's powder and with mercurial inunction, was used until ptyalism occurred. The great majority of patients recovered under this treatment. Then followed the sedative treatment, consisting of the use of veratrum viride, aconite, and ultimately digitalis. The sedative treatment of Norwood had given birth to all our subsequent ideas of sedation. This was an advance on the pure depletory treatment, and had resulted in real good. Then came the stimulant treatment. This was a still further advance, and had brought more and better fruits than any other single treatment. This also might be modified and combined with elements of other methods with advantage. The speaker had not seen benefit from the pure antipyretic treatment. He had in former years seen much of the epidemic forms of typhoid pneumonia, with a tendency to collapse, which was constant and great. In this form he had used large quantities of whisky—a quart per diem—carbonate of ammonium, tincture of nux vomica, and chloroform internally. In this form he had also used, in connection with stimulants, solution of acetate of ammonium, tincture of nux vomica, and tincture of chloride of iron, with benefit. He did not think, from this long experience, that adherence to any one single routine treatment exclusively would give as good results as the plan of combining the good features of all; but the value of stimulants and nourishment should never be forgotten. He had seen cases of pneumonia, with slight fever, slow pulse, moderately excited respiration, etc., end in recovery without medication.

Dr. J. H. NEFF, of Harrisonburg, believed that acute croupous or lobar pneumonia was a general disease, due to a specific poison. This theory had been ably presented for some years, and much could be said for and against it. But each year's experience had strengthened his opinion in its favor. The future organic chemists and bacteriologists must prove whether the contagium was a chemical poison or an organized germ. Believing that pneumonia was a general disease, due to a specific cause, for which there was no specific medicine capable of aborting its course, he thought the treatment must be determined by the nature of the attack in each individual constitution. He had never bled nor given a dose of aconite or veratrum viride, nor used mercury except to give occasionally an ordinary dose of calomel in the beginning. Many patients would recover without medicine, if properly nursed; this had been observed and recorded more than twenty-five years ago. He had seen cases of double pneumonia with scarcely a bad symptom. The area of lung involved did not always determine the gravity of the disease. He gave opium or morphine to allay pain, lessen shock, produce sleep, etc. He regarded quinine as the safest antipyretic; besides, it had special virtues in lessening the gravity of all local inflammations. He had never seen it produce collapse, and hence preferred it to other arterial sedatives. If not needed as an antipyretic, it might be of benefit in small tonic doses. He gave antipyrine to children; and, if he had any routine treatment, it was to envelop their chests with an oil-silk jacket lined with soft, fine flannel. Digitalis, alcohol, ammonia, and chloral had all, in their places, been of much service.

Dr. J. G. WILTSHIRE, of Baltimore (present as a delegate), said that, studying the subject of croupous pneumonia after Lépinc, Sevestre, Charcot, and others, one must accept the theory that it had its origin in a specific pathogenetic germ; yet it could not be denied that there were certain meteorological conditions that stood in a strong causative relation to its production. We were constantly exposed to the invasion of the pneumococci; but, for the want of the necessary conditions to render the mucous membrane of the lung a suitable soil for their culture and growth, it was able to resist them for a time, only to yield when such exciting causes as cold and traumatism supplemented the specific influence of the germs. Apropos of the theory that the pneumococci had other habitats than the lungs, he called attention to the study of Sevestre of an epidemic of broncho-pneumonia, complicating cholera infantum and other enteric troubles, in which he had found the microbes of pneumonia in the intestinal tract, whence they were carried to the lung by the lymph channels. The treatment of croupous pneumonia called for heart sedatives, heat, and moisture in the form of hot cloths. These, if used in the first stage, might abort the disease; should it, however, pass into the stage of red hepatization, a supporting and stimulating plan should take the place of the sedative one. The temperature and heart should be watched as closely as the powers of the patient. Alcohol was important in the second and third stages. Quinine and antipyrine, when used together, were the best antipyretics. They not only reduced the temperature, but preserved the power of the heart. Carbonate of ammonium did the twofold work of aiding in liquefying and facilitating the expectoration of the fibrinous deposit and of keeping the heart's force up.

Dr. HENY M. PATERSON, of Staunton, said that, if this was a specific disease, the treatment given had certainly been at variance with such an idea. He did not believe that it was a simple hyperæmia of the lungs. The gravity of the attack depended on the amount of exudation. How to remove the engorgement was the question. This was the time to abort the disease, if such a thing was ever possible. His present success with the lancet was as great as it had been when he began practice, in 1851, and compared most favorably with the results of other plans of practice to-day. As a food and stimulant, he gave alcohol during the second stage in almost every case. He had also had some remarkably satisfactory experience with ergot.

Officers for the Ensuing Year were elected as follows: Dr. Oscar Wiley, of Salem, president; Dr. J. M. Estill, of Tazewell Court-House, Dr. Alfred C. Palmer, of Norfolk, and Dr. Casper C. Henckel, of New Market, vice-presidents; Dr. Landon B. Edwards, of Richmond, recording secretary; Dr. J. F. Winn, of Richmond, corresponding secretary; and Dr. Richard T. Styll, of Hollins, treasurer. Dr. John S. Apperson, of Glade Spring, was chosen to deliver the address to the public and profession during the session of 1890. Dr. C. T. Lewis, of Clifton Forge, was selected as the leader of the discussion of the selected subject for 1890—"The Treatment of the Summer Diarrhœa of Children." Dr. R. F. Young, of Love's Mill, and Dr. P. B. Green, of Wytheville, were nominated for commission as members of the Medical Examining Board of Virginia, to fill vacancies occasioned by two resignations. Rockbridge Alum Springs was selected as the place for the annual session of 1890, some time between the 25th of August and the 5th of September, as the Executive Committee might hereafter determine.

The Report of the Section in Anatomy and Physiology, in the form of a paper entitled "Mental Action—Material Action," was read by Dr. E. T. BRADY, of the Southwestern Lunatic Asylum at Marion.

The Report of the Section in Materia Medica and Therapeutics was presented by Dr. WILLIAM B. COOPER, of Woodville.

The Report of the Section in Obstetrics and Diseases of Women and Children was presented by Dr. R. S. MARTIN, of Stuart, in the form of a paper entitled "Advances in Diseases of Women."

The Report on Advances in Obstetrics was read by Dr. CHARLES W. PRITCHETT, of Keeling.

The Report on Advances in Diseases of Children was read by Dr. A. S. PRIDDY, of Keysville.

A Further Contribution to the Study of the Ætiology and Prophylaxis of Puerperal Septic Infection was the title of a paper read by Dr. GEORGE T. HARRISON, of New York, an honorary fellow. The doctrine of self-infection, he said, which had recently been brought into prominence, and the industrious researches of the bacteriologist, with the practical deductions from them, had divided obstetricians into two parties diametrically opposed to each other. The one side attached all importance to the disinfection of the obstetrician ("subjective disinfection"). The other regarded it as a matter of necessity to subject the parturient woman, in a greater or less degree, to antiseptic measures ("objective antiseptis"). The writer had taken the ground of those who advocated the paramount importance of subjective antiseptis in a paper read before the society in 1885, and had not had reason to change his ground. Of course, this position did not exclude the thorough cleansing and disinfection of the external genitals. The views of Kaltensbach were quoted, who insisted upon it that an obstetrician, even with clean hands, might induce infectious forms of disease. He believed that, as the surgeon disinfected his field of operation, so must the obstetrician disinfect the parturient canal as well as the vicinity. Winter, as the result of bacterial investigations, had drawn the inference that it was necessary to disinfect the cervix and vagina to avoid self-infection. Steffek and Dolderlein had arrived at the same conclusion. The writer believed that, if the demands made by the bacteriologists were generally acceded to, and it became a universally accepted rule of practice that the cervix and vagina of every parturient woman should be subjected to thorough and energetic disinfection, an immense amount of injury would be inflicted. These disinfective procedures deprived the vagina of its physiological mucus, and rendered it more vulnerable. It became more liable to the attack of infective germs. Moreover, labor was mechanically retarded when the vagina lacked its normal mucus, and it must not be forgotten that disinfection of the vagina and cervix was a painful manipulation. Probably the most serious objection that could be urged against the self-infection doctrine was that it diminished the personal responsibility of the obstetrician, and that that wholesome dread of infection disappeared which every one should have who examined a parturient woman. The distinction was made between septic infection and putrid intoxication. Cases of so-called self-infection were really cases of ptomaine intoxication. The microorganisms of septic infection were streptococci. According to Bumm, the streptococci of erysipelas and those of phlegmonous inflammations were identical. Bumm's careful and exact bacteriological studies lent no countenance to the doctrine of self-infection. Leopold's clinical experience had been very striking. Of five hundred and ten women treated without vaginal douches, only nine had slight febrile phenomena. When the cervix and vagina were disinfected there was a marked rise of morbidity. The doctrine of self-infection was a retrograde movement, and tended to imperil our present attainments in the prophylaxis of septic infection.

Some Gynæcological Work of the Past Year was the title of a paper by Dr. J. S. STONE, of Lincoln. The author stated that his cases had been treated in his private sanatorium, where the patients could have good surroundings, nursing, etc. Four

cases of abdominal section for cystic tumor of the peritonæum with cancer of the transverse colon, salpingitis, chronic peritonitis following salpingitis, and one Battey's operation, were reported. The specimens shown (three in number) were characteristic of the disease in question. Other cases of lacerated cervix and perinæum were alluded to briefly. The author still advocated Emmet's operation for lacerated cervix, but did not now perform it so frequently as formerly. One case of modified hysterorrhaphy was mentioned in which Alexander's operation was done on the left side and a partial hysterorrhaphy on the other. It was maintained that many minor disorders not surgical were to be successfully treated with massage, electricity, and over-feeding by the Weir Mitchell method. The author had had several years' experience in treating these cases, and affirmed that a very large percentage of cases came under this heading. Electricity was not spoken of at length, but enough was said to show some skepticism in regard to its value in all cases save those of nervous complications.

A Report on the Practice of Medicine was read by Dr. JOHN W. SCOTT, of Gordonsville.

Enteralgia and Chronic Peritonitis.—Dr. A. JACOBI, of New York, contributed a paper on this subject, in which he said that enteralgia was always an irritation of a branch or of branches of the sympathetic nerve. Its cause lay in the nerve, or the intestinal tissue, or its contents. Hysteria, hypochondria, malaria, gout, poisons, etc., might start the disease; or the pain might be reflected from spinal, hepatic, genito-urinary, or cutaneous disease, sudden chilling of the skin being a frequent cause. The pathological changes were congestion or inflammation, with their results. Acid foods, certain drastics, scybala, fermenting foods, etc., were the common causes of enteralgia. The attacks were indefinite in length and suddenness. The temperature was rarely raised; the pulse was irregular; the skin became cold and clammy; sometimes dysuria, nausea, vomiting, constipation, or diarrhœa occurred. The tumidity of the abdomen changed its place under palpation, etc. Priapism and seminal discharges might occur with spastic retraction of the testicles. A common cause of enteralgia, often overlooked, was chronic peritonitis of a secondary nature. New abdominal formations, peritoneal adhesions, swollen pelvic glands, etc., pointed to previous peritonitis. A floating kidney might give rise to peritonitis, and thus become fixed in its abnormal position. Vertebral disease, psoas and iliac abscesses, hip-joint abscess, etc., might cause chronic peritonitis, often not recognized except post mortem. Catarrhal diseases of the female genitals were frequent causes, as were also violent cohabitation, the puerperal state, etc. Biliary calculi, perinephritis, splenic and pancreatic diseases, infantile intussusception, a preceding attack of peritonitis, etc., were also causes. Simple intestinal catarrh might speedily grow into enteritis. Inflammation was likewise communicated to the muscular and mucous tissues from the peritonæum, and thus gave rise to œdematous infiltration, paralysis, and consequent constipation. Thus, also, diarrhœa, intestinal ulceration, without perforation, etc., might cause local peritonitis. The diagnosis of chronic peritonitis was not always easy. The respiration need not be accelerated in pelvic peritonitis. Vomiting was sometimes wanting; diarrhœa was not infrequent, but constipation was the rule; the abdomen might be tumid; and the horizontal posture was often uncomfortable. The seat of inflammation or adhesion might sometimes be told by placing the patient on his back, extending and then flexing the extremities, and then using pressure, soft or hard, sudden or gradual. Often, however, it was best to make deep pressure; if there was no pain, the pressure should be relaxed suddenly, when localized pain might be felt. Change of position of the bowels might arouse pain; sharp pain after a full meal might

point to adhesions of the stomach; if pain occurred three or four hours after eating, chronic colitis should be looked for; if it occurred after quickened inspiration, then perihepatitis, etc. The variability of the pain depended on the degree of irritation or congestion. Extensive pelvic peritonitis might not give rise to pain except on defecation, cohabitation, micturition, etc. In pericystitis, when the urine was about half voided and the bladder began to contract more efficiently, a localized pain above the pubes, increased by pressure, developed, much resembling the spasmodic pain of vesical catarrh. Flatulence, etc., developed enteralgia in chronic peritonitis. Stenosis of the bowel, twisting, adhesions, etc., resulted, thus interfering with the intestinal functions. In short, the sequelæ of chronic peritonitis were very various. The indications of the treatment of enteralgia from chronic peritonitis were determined by its results and symptoms, such as intestinal sluggishness, adhesions, etc. Subacute and acute peritonitis required absolute rest, support for the knees, ice or hot applications according to circumstances, opiates, etc. Some were now recommending large doses of magnesium sulphate and turpentine enemata; but a treatment under which an occasional patient might escape death must not supersede one that had proved successful in most cases and beneficial in all. Localized attacks, mainly in the right hypochondrium, demanded local applications; a few leeches occasionally and morphine subcutaneously might be required. Old adhesions, etc., were not amenable to medicines. Great physical exertion, pressure on the abdomen, etc., must be avoided. The bowels should be kept regular. A snug bandage should be worn over the whole abdomen for years after the last complaint of pain. Generally this bandage, held down by a perineal band, gave immediate relief. Without the immobility given by it to the sore intestine, he did not expect a case of chronic peritonitis to do well.

(To be concluded.)

NEW YORK ACADEMY OF MEDICINE.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

Meeting of May 28, 1889.

Dr. CLARENCE C. RICE in the Chair.

Rhinoplasty.—Dr. R. T. HOWE gave a description and demonstration of an operation of this sort done by the late Dr. T. T. Sabine, the details of which had not all been published up to that time. The patient, a man of thirty years, had had perfect features when born. At the age of twelve he had received a blow on the nose, with fracture of the bones and a wound which had never fully healed. At length erysipelas had appeared in the wound and destroyed much of the surrounding tissues, leaving a very unsightly cicatricial formation. It was to remedy this condition that the little finger had been ingrafted to take the place of the destroyed feature.

Dr. J. H. GIRDNER, who had watched the operation and the subsequent history of the case, recalled some points of interest. Great difficulty had been met with in destroying the matrix of the finger nail. The finger had been frozen and the nail removed; then the stump had been cauterized with fuming nitric acid. Nevertheless, after the finger was implanted, the nail had repeatedly grown out again. At the time of operation no tracheotomy-tube had been provided among the instruments in the operating-room, since no one had expected that need for one would arise. No bleeding had occurred until the finger was being stitched into place just over the mouth, when suddenly the man's breathing had stopped, and his face had become intensely cyanotic. With perfect coolness and marvelous rapidity Dr. Sabine had made an opening into the trachea, held the sides

of the wound apart with his fingers, at the same time preventing hæmorrhage into the trachea by pressing on the tracheal rings, and so had kept the patient breathing easily until a tube could be brought from a distance. A third point of interest in the history was that the patient had suffered from prolapse of the rectum a few days after the operation, although never before or since that time.

From time to time, after the finger had grown to the face and traction on the hand had shown that the skin was perfectly adherent, efforts had been made in the way of preparing for the final step of severing the finger from the hand. Pressure on the digital arteries had continued to produce pallor in the tissue which it supplied, and doubt had arisen whether the implanted finger could ever be nourished when its own blood-supply was cut off. However, the two digitals had been tied, one at a time, and, although the finger had continued to be bloodless for a considerable time, a collateral circulation had at last become established. The artificial nose finally obtained had been considerably shorter than the operation had at first promised to give, owing to necrosis of the end of the bone and retraction of the skin of the first phalanx of the finger.

Amygdalotomy.—Dr. C. H. KNIGHT presented a patient from whom he had removed a very much enlarged tonsil by the use of the galvano-cautery loup, and called attention to some advantages connected with this mode of operation as compared with the use of the steel amygdalotome.

New Instruments for Operations on the Nasal Septum.

—Dr. J. M. W. KITCHEN presented a set of instruments designed to facilitate the dissecting up of flaps of mucous membrane from the septum. It consisted of two knives and two spuds, all having flexible shanks four inches long, so that any part of the nasal cavity could be reached. The blades of the knives were round in form and about an eighth of an inch in diameter. The blade for making antero-posterior cuts had its cutting edge parallel with the shank of the knife, while the knife for making vertical cuts had its blade set at right angles to the shank. The spud, intended for lifting the mucous membrane, was ovoid in shape, and about a third of an inch long and a fourth of an inch wide. At best, these operations were difficult. Where the mucous membrane was thick and vascular, the speaker thought it best to attempt no operative treatment of this sort.

A New Tube for Intubation adapted to the Movements of Deglutition.—Dr. J. M. BLEYER presented a new intubation-tube of which the most important feature was its automatic closing whenever the patient swallowed, so that neither fluids nor solids in the diet could enter the trachea through the tube. Its light weight and cheapness constituted additional advantages. This tube was made partly of hard and partly of soft rubber, the three sections being melted together by a process invented by Tiemann & Co. Its head was composed of wire and hard rubber, the latter being vulcanized over the wire; this gave it great firmness, and precluded the possibility of its breaking during extraction. The neck was of soft flexible rubber, and the tracheal portion of the tube of hard rubber. During deglutition the adduction of the vocal cords and the action of their accessory muscles closed this soft portion of the tube completely. Afterward it reopened by its own elasticity.

The idea had been first suggested to the speaker by direct observations made in a case of syphilitic ulceration of the epiglottis in which this organ had been completely destroyed by the disease. Finding that, simultaneously with the act of swallowing, a very marked adduction of the cords took place, he had introduced into the larynx a piece of soft-rubber tubing, and had found that the closure occurred with force sufficient to compress the tubing and effectually preclude the entrance of food.

He had also experimented on a dog, laying open the thyroid cartilage, introducing his finger into the larynx, and at the same time bringing about acts of deglutition. His finger had been squeezed between the cords with considerable force at these times.

Electricity for Medical Purposes as supplied by the Edison Dynamo.—Dr. O. B. DOUGLAS read a paper on this subject, showing the many advantages of such an arrangement as compared with the difficulties incident to obtaining a supply from galvanic cells. The doubts raised as to the therapeutical value of electricity at a recent meeting of the Academy he could not share. He believed good results depended, more than was usually recognized, upon an exact adjustment of the length of a sitting to the nervous condition of each patient.

Now that he got all of his electricity from the wires of the Edison company, paying for what he took only, and being always certain of having whatever amount of current he desired, he was more than ever satisfied with its practical value and its great convenience in the physician's repertory of resources. The speaker then described the method (an adaptation of Parnell's) by which he regulated the strength of the current. He expected to have the total yearly cost of his electricity come within one hundred dollars, and this provision included the supply in his office of a smooth, soft electric light during the hours from darkness to midnight. He had provided himself with six storage cells, but used only three of them, and found two sufficient for supplying a galvano-cautery.

Dr. W. B. VANDERPOEL compared the results obtained by Dr. Douglas with those secured from an apparatus in which galvanic cells were used to charge a storage battery, and concluded that, no matter at what expense the supply of galvanic electricity was arranged for, the method which Dr. Douglas had just described was the best which had as yet been suggested, especially as regarded its reliability and its not requiring an expert to keep the plant in order.

Dr. GIRDNER concurred in this opinion, but thought a thoroughly constructed apparatus consisting of gravity cells and a storage battery must remain the best device for supplying those who did not happen to have a wire of the Edison system passing through their neighborhood. Such a battery, moreover, could be constructed and maintained with but little trouble, and at a cost still much below that of electricity from the Edison system, and would furnish every form or strength of current used in medicine.

Mr. MEDICROFT, an electrical engineer, present by invitation, stated that a connection with the wires of the Edison system involved no risk of accident in case the wires were handled. He thought Dr. Girdner had had better results from a galvanic storage battery than were usually met with. In most instances a sufficient outlay was not made at the outstart, so as to get good connections. A storage battery and gravity cells would give much better satisfaction if the wires connecting the latter to the former were not carried through the flooring and out of reach. The speaker then stated that the Edison current could be supplied in New York anywhere between Fourteenth and Fifty-ninth Streets and Sixth and Madison Avenues. The first cost of its introduction, including connections, was \$125. It was always better to be liberal in the first cost of electrical apparatus. This outlay would furnish a light of from sixteen to twenty-four candle power. Once connected, the current never stopped. A light of sixteen candle power cost one cent and a fifth an hour, or at the rate of two dollars a thousand feet of gas. A motor could be supplied at the cost of the amount of current it consumed only.

The Diagnosis and Treatment of Certain Forms of Rhinitis.—Dr. C. H. KNIGHT read a paper with this title. (See p.

32.) The general conclusions reached were strongly indorsed by Dr. M. J. Asch, Dr. Douglas, and Dr. Beverley Robinson, especially as regarded the essentially constitutional nature of catarrhal affections of the nose, and the primary importance of constitutional treatment for their relief. Dr. Robinson believed douches and sprays to be, therefore, essentially irrational; most people found themselves "stopped up" in cold, moist weather, and why should we hope that the direct application of a cooling spray should relieve this condition? On the other hand, we often found patients doing better in high, dry, and equable pine-tree regions, or around mineral springs. Following this suggestion, he had of late adopted the use of volatile agents, and with good results. The chief drawback was that we had no means of using them that did not involve too much time and trouble. If we directed our attention to the general constitutional state, we must be prepared to do so in a very intelligent manner. He had little belief in our ever getting lasting relief in asthma by nasal operations. In a record recently kept of thirty-one cases, in five of which a notable stenosis of the nasal passages had existed, an operation had been done in all of the latter; but with no effect whatever (on the asthma) in one of the five patients and only a temporary alleviation in the other four. Asthma was, in his opinion, a disease connected with a deranged condition of the stomach and heart closely allied to gout. It was folly to suppose any one local trouble, such as nasal stenosis, could occasionally and entirely of itself cause an affection which had really so complex an ætiology as asthma. Till we were able to abandon the almost axiomatic truths which the wisdom of the ages had brought us, we ought to be very careful in our active interference with an organ like the nose, the functions of which were not fully understood—else we were likely to accomplish more harm than good.

The CHAIRMAN, while he appreciated the necessity of constitutional treatment, believed the time was now come when rhinologists could study, and, in certain cases, treat locally, the various obstructions of the nose to some purpose. He spoke particularly of his success in the use of cocaine and chromic acid in hyperplasia of the nasal mucous membrane, and also in chronic hyperæmia. In operating for obstruction we should aim to restore the nasal function (to the extent of restoring a circulation of air through the nares) without destroying too much of the tissues in which other functions were seated.

Book Notices.

Lectures on Nervous Diseases, from the Standpoint of Cerebral and Spinal Localization, and the Later Methods employed in the Diagnosis and Treatment of these Affections. By AMBROSE L. RANNEY, A. M., M. D., Professor of the Anatomy and Physiology of the Nervous System in the New York Post-graduate Medical School and Hospital, etc. Profusely illustrated with Original Diagrams and Sketches in Color by the Author, carefully selected Woodcuts, and reproduced Photographs of Typical Cases. Philadelphia: F. A. Davis, 1888. Pp. xiv-778. [Price, \$5.50.]

DR. RANNEY'S book is in some respects a unique contribution to neurological literature. It is largely a compend of previous papers and publications by himself; and yet so deftly is the old material which is thus utilized woven in with the new matter that the combination forms a congruous whole, and no one not conversant with the author's previous works would recognize that the present work was thus pieced together or

would be able to indicate the lines of junction of its component fragments. This appearance of symmetry and completeness in a book so constituted is largely due to the logical and orderly arrangement of the separate parts—an arrangement which insures the presentation of the different subjects according to a natural and easy order of development. In other words, the author builds his work from the ground up—stating first the anatomical, physiological, and pathological facts upon which the science of neurology is based; then giving in full detail the means of recognizing the pathological conditions which may exist, and thus showing how the knowledge of these basal facts of the science can be utilized for the investigation of nervous diseases; and finally taking up in order the individual diseases themselves, enumerating first the structural affections of the brain and spinal cord; secondly, the functional nervous affections; and, thirdly, those diseases which do not seem to fall certainly under either of the former heads, or which are of toxic origin. A section on electro-therapeutics, which is mainly a re-edition of the author's "Electricity in Medicine" and of his brochure on "Static Electricity," completes the book.

While each one of these subdivisions of the work is satisfactory in point of both style and matter, being readable, apparently well brought down to date, and containing much useful new material, the section which will especially engage the attention both of the specialist and of the general practitioner is that upon functional nervous diseases. It might be thought that but little or nothing that was new or interesting could be advanced in regard to such well-worn themes as epilepsy, chorea, and neuralgia; but the author's recognition of the reflex element which undoubtedly plays such a large part in the causation of these affections, and his own most interesting experience in regard to the relief of them by the "Stevens" method when, as is often the case, they are due to derangement of the ocular muscles, should demand careful study and appreciation. To those who, without examination of its merits, have hitherto ridiculed this method in its application to nervous disease, we cordially commend a perusal of Dr. Ranney's book.

An excellent feature of the work is found in the numerous colored diagrams, many of them either original with the author or modified by him from the designs of others. Such diagrams elucidate more clearly than any mere pictorial illustration, or than any amount of descriptive text, some of the most difficult points in cerebro-spinal anatomy and physiology.

The book is written in a clear, unpretentious style, equally free from involved discussions and from dogmatism of statement; and, in the controversial portions, the reviewer notices with pleasure a marked absence of personality or of anything approaching abuse or unfair treatment of an adversary.

The mechanical execution is excellent, the type, paper, and in general the illustrations also, leaving little to be desired.

BOOKS AND PAMPHLETS RECEIVED.

Annual of the Universal Medical Sciences. A Yearly Report of the Progress of the General Sanitary Sciences throughout the World. Edited by Charles E. Sajous, M. D., Lecturer on Laryngology and Rhinology in Jefferson Medical College, Philadelphia, etc., and Seventy Associate Editors, assisted by over Two Hundred Corresponding Editors, Collaborators, and Correspondents. Illustrated with Chromo-lithographs, Engravings, and Maps. Vols. I, II, III, IV, and V. Philadelphia and London: F. A. Davis, 1889.

A Text-book of Human Physiology, including Histology and Microscopical Anatomy; with Special Reference to the Requirements of Practical Medicine. By Dr. L. Landois, Professor of Physiology and Director of the Physiological Institute, University of Greifswald. Third American, translated from the Sixth German Edition. With Additions by William Stirling, M. D., Sc. D., etc. With Six Hundred

and Ninety-two Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xxxi-33 to 974. [Price, \$6.50.]

A Text-book of General Therapeutics. By W. Hale White, M. D., F. R. C. P., Senior Assistant Physician to and Lecturer on Materia Medica and Therapeutics at Guy's Hospital. With Illustrations. London and New York: Macmillan and Co., 1889. Pp. xi-371. [Price, \$2.50.]

A Manual of Chemistry for the Use of Medical Students. By Brandreth Symonds, A. M., M. D., Assistant Physician to Roosevelt Hospital, Out-patient Department, etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 154. [Price, \$2.]

Lectures on Obstetric Nursing. Delivered at the Training School for Nurses of the Philadelphia Hospital. By Theophilus Parvin, M. D., Professor of Obstetrics and Diseases of Women and Children at Jefferson Medical College, etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. viii-9 to 104. [Price, 75 cents.]

Essentials of Pathology and Morbid Anatomy. By C. E. Armand Semple, B. A., M. B. Cantab., L. S. A., M. R. C. P. Lond., etc. With Forty-six Illustrations. Philadelphia: W. B. Saunders, 1889. Pp. xvi-160.

Inebriety: Its Aetiology, Pathology, Treatment, and Jurisprudence. By Norman Kerr, M. D., F. L. S., Fellow of the Medical Society of London, etc. Second Edition. London: H. K. Lewis, 1889. Pp. xxxii-471.

Index-catalogue of the Library of the Surgeon-General's Office, United States Army. Authors and Subjects. Vol. X. O to Pfutsch. Washington: Government Printing Office, 1889.

Transactions of the Gynaecological Society of Boston. New Series. Vol. I. Boston: Published by Cupples & Hurd, 1889.

Transactions of the American Surgical Association. Volume the Seventh. Edited by J. Ewing Mears, M. D., Recorder of the Association. Philadelphia: P. Blakiston, Son, & Co., 1889.

Transactions of the Thirty-ninth Annual Meeting of the Illinois State Medical Society, held in Jacksonville, May 21, 22, and 23, 1889.

On Disordered Digestion and Dyspepsia. By Frank Woodbury, A. M., M. D., Fellow of the College of Physicians of Philadelphia, etc. Detroit: George S. Davis, 1889. [The "Physicians' Leisure Library."]

Prolapse of the Womb, with Especial Reference to the (so-called) Hypertrophic Elongation of the Supra-vaginal Portion of the Cervix, with Report of a Case. By Lewis H. Adler, Jr., M. D. [Reprinted from the "Medical News."]

Spinal Caries: Operative Treatment, Laminectomy, or so-called Trephining of Spine. By De Forest Willard, M. D., Ph. D., etc. [Reprinted from the "Transactions of the College of Physicians of Philadelphia."]

Nephrectomies for Gunshot Wound and for Tuberculous Kidney. By De Forest Willard, M. D., etc. [Reprinted from the "Transactions of the American Surgical Association."]

by ingestion of flesh or milk; and that though the disease might seem limited to the viscera, the flesh appearing healthy, yet the tubercle bacillus might be there. It was ruled that, "except on the footing that the meat was the medium of transmission of the disease, it would be unnecessary and wasteful to exclude from the food-supply the carcasses of animals which had suffered from tuberculosis, however generalized and extensive." The interest of the public health, however, was paramount to the question of a small loss to the food-supply.

The Distribution of Disease in Southern India.—In a paper on this subject by Surgeon-General George Bidie ("Brit. Med. Jour.," July 20, 1889), the results of a long residence in the Madras presidency are given. The territory has an area of about 149,000 square miles, with a population varying from 91 persons in Kurnool to 583 in Tanjore to the square mile. During the past five years the mean annual death-rate in towns was 24.9 in a 1,000, in the rural districts 19.9 in a 1,000. The cold season is most fatal to natives, the hot months being healthiest. The moisture in the air, the daily range of temperature, and the character of the soil are determining causes of disease. The cold, damp, clay soils cause pulmonary diseases, the alluvial soils cholera and bowel complaints, while the sandy and gravelly soils are generally wholesome. During twenty years the mortality from cholera was at the mean rate of 44.02 to 1,000 inhabitants; the disease occurred in the water-logged alluvial land, the villages and towns being very dirty, and the drinking water being taken from filthy irrigation ditches and shallow wells. Malarial fevers are generally prevalent in the low-lying districts, shunning the coast as a rule, and are rather rare in the rice districts; the death-rate is greater in the country (8.6) than in towns (6 in 1,000). Fogs seem to increase the prevalence of fever, the moisture containing the malarial germs that are introduced through the lungs. Small-pox is quite prevalent—endemic, the author says. There is popular opposition to vaccination, and not more than 16 to 17 per cent. of children are protected by vaccination; the mean annual death-rate is from 1 to 4 to 1,000 of the population. Phthisis and syphilis are common, and the author considers that the latter predisposes to the development of the former. Beri-beri is endemic in various places, sometimes epidemic in the wet season, the germs being bred in the soil and carried in the air. Madura foot is due to a fungus, usually introduced by traumatism. Elephantiasis is endemic also; it is supposed to be due to a *Filaria*. Leprosy, 4.4 to 10,000, is held in check by the high mortality and low fecundity of those affected. Segregation is not practiced.

The Pasteur Institute, Paris.—According to the recently published proceedings of the Academy of Sciences, Paris (*ibid.*), 1,673 persons had been treated in the institute. It was certified that all had been bitten by rabid dogs; and that the animals were rabid was often demonstrated by inoculation. There were thirteen deaths, six occurring during treatment that was probably begun too late, four taking place soon after treatment, and three seeming to show complete failures of inoculation protection. It would have enhanced the value of the statistics if the number of dogs proved to be rabid by inoculation experiments was given.

The Health of Children in Fourteen London Schools.—A committee to investigate the physical condition of the pupils in London schools was appointed by the psychological section of the British Medical Association ("Brit. Med. Jour.," July 27, 1889), and, on account of the refusal of the London School Board to allow the investigation to be made in their schools, the observations had to be confined to fourteen elementary schools. The results of the examination are given, without comment, in a series of lengthy tables. There were 1,944 boys and 1,987 girls examined; among these there were signs of nerve weakness—nervous hand, weak hand, lordosis, toneless orbicular muscles of the eyelids, and finger twitches—in 207 boys (10.6 per cent.) and 144 girls (7.2 per cent.); with defective nutrition, there were 100 boys (5.1 per cent.) and 84 girls (4.2 per cent.); with mental dullness, there were 153 boys (7.8 per cent.) and 78 girls (3.9 per cent.); with cranial abnormalities—rickets, large head, small head, dolichocephalus, narrow forehead, etc.—there were 166 boys (8.5 per cent.) and 65 girls (3.2 per cent.); with diseases or defects of the eyes—squint, hypermetropia, myopia, disease of the cornea, disease of the lids, cataract, nystagmus, loss of the eye—there were 74 boys (3.8 per cent.) and 75 girls (3.7 per cent.). One or more of the conditions were found in the same child

Reports on the Progress of Medicine.

HYGIENE AND PUBLIC HEALTH.

BY S. T. ARMSTRONG, M. D.,
U. S. MARINE-HOSPITAL SERVICE.

The Sale of Tuberculous Flesh and Milk in Scotland.—At a recent meeting of the Scottish Veterinary Association ("Glasgow Med. Jour.," July, 1889) the Government was petitioned to stop the sale of milk from animals suspected of being infected with tuberculosis, and to suppress the consumption of the meat of such animals, owners being recompensed for the value of the latter. This petition seems to be the outcome of a recent trial in Glasgow relative to the question of the condemnation of a whole carcass if tuberculosis was present in a limited portion, in which two carcasses were adjudged unfit for food. The grounds of the judgment were that tuberculosis in the lower animals was the same disease as tuberculosis in man; that it was transmissible

occasionally. Only in defective nutrition and ocular defects were the sexes equal; strange to note, nerve-weakness was greater in the boys than in the girls, and the other defects were almost twice as common in boys as in girls.

The Training of Local Health Officers.—The chairman of the Section in Public Medicine of the British Medical Association (Dr. E. Ballard) has presented the results of his extensive experience with local health officers in a consideration of their necessary qualifications ("Brit. Med. Jour.," August 31, 1889). He considers that such an official should have a wider range of information than is requisite for the general practitioner, adding to the knowledge required by the latter an acquaintance with meteorology, geology, sewer and water engineering, the construction and ventilation of houses, bacteriology, and the laws governing epidemic contagia, and even the pathology of animals. His scientific education should be supplemented by a course of training under a health official; and he must never forget that he is not an autocrat, but always display tact in dealing with his constituency. In the discussion on the paper it was agreed that the local health officer should be appointed by the state, to hold office during life and good behavior, and that the salary should be sufficient to permit general practice to be prohibited, no one being appointed to such a position unless holding the special qualifications in hygiene above noted, and, in addition to his general duties, to have charge of vital statistics, medical registration, and public vaccination.

The Incubation Period in Infectious Diseases.—Dr. James Finlayson ("Glasgow Med. Jour.," May, 1889), in preparing a code for the regulation of the school attendance of children exposed to or affected by infectious diseases, found that there was a decided diversity of opinion among authorities as to duration of the incubation period and as to the time of quarantine for children that had been exposed. The incubation period in scarlet fever is given as low as 1 day and as high as 14 days, with an average duration of quarantine from 10 to 14 days; measles, from 3 to 17 days—quarantine 16 days; r6theln, from 4 to 21 days—quarantine from 16 to 21 days; mumps, from 4 to 24 days—quarantine from 21 to 24 days; whooping-cough, from 4 to 14 days—quarantine from 16 to 21 days; chicken-pox, from 2 to 18 days—quarantine from 18 to 21 days; small-pox, 5 to 19 days—quarantine 16 to 18 days; diphtheria, 1 to 14 days—quarantine 10 to 12 days; enteric fever, 1 to 30 days—quarantine 28 days; typhus fever, 1 to 21 days—quarantine 21 to 28 days; erysipelas, 1 to 13 days—quarantine 10 days. As in the United States local ordinances involving this question require the physician to furnish a certificate to the child, the periods of quarantine above given may serve as precedents.

The Influence of the Closure of Schools on an Epidemic of Measles.—The health officer of Cardiff, Dr. Edward Wolford, reports ("Sanitary Record," May, 1889) that in the autumn of 1888 an epidemic of measles occurred among the children attending school, and, notwithstanding every effort to stamp out the outbreak by careful inspection, enforcing and advising ordinary precautionary measures, and distributing printed circulars of information, the disease became so prevalent that by the end of November almost one third of the pupils were ill or confined at home. The schools were closed for four weeks, and the number of cases at once decreased; only four cases appeared among twenty thousand scholars after the schools were reopened. The author considers that the material was not exhausted, but that the comparative isolation of the children stopped the epidemic. This opinion is supported by the fact that in a previous epidemic, when the schools were not closed, the mortality was double that in the present instance.

Child Mortality in Dublin.—Dr. T. W. Grimshaw ("Dublin Jour. of Med. Sci.," July, 1889) calls attention to the fact that, while the annual death-rate to 1,000 in children under twelve months (14.5-5) and five years (36.6) is less in Ireland than in England or Scotland, yet in Dublin the rate in the first-mentioned class increases to 210.1 to 1,000, and is higher than that of any other city in the United Kingdom. He considers that it is caused by: 1. The large proportion of poor in Dublin, statistics proving that the infant mortality in the working class is six times as great as in the professional class. 2. The inferior house accommodations of the artisan and laboring classes, the larger tenement houses accommodating 7-5, the smaller 4-8 families. 3. The intemperate habits of the laboring classes, statistical tables showing that

a high death-rate is coincident with a high drink-rate, and that Dublin leads the United Kingdom in the latter feature. 4. Carelessness regarding the care of young, and especially sick children, this being demonstrated by the large number of uncertified deaths.

Disinfection by Steam at High Pressure.—Dr. A. D. L6bimoff ("St. Petersburg Inaug. Dissert.," 1889, p. 54) has experimented with the steam disinfection apparatus of Geneste and Herscher and with a disinfection chamber in the St. Petersburg Clinical Military Hospital. The steam current had a pressure of six atmospheres. Strips of Swedish filter paper saturated with various microbes were put into test-tubes; these were placed in pillows, mattresses, and bundles of clothing, and kept in the disinfecting chamber from half an hour to three hours. The inoculated paper was then introduced into agar-agar or broth cultivation media. The experiments demonstrated that sporeless bacteria were killed in half an hour, while pathogenic microbes were entirely destroyed after an exposure to steam at 113° or 114° C. The disinfecting chamber must be able to maintain this temperature for an hour and distribute the steam uniformly to all parts of the apparatus. Articles to be disinfected must be dry, because if damp they interfere with the height of the temperature; and they should be distributed singly in the chamber, or be done up in small parcels. The management of such chambers should invariably be in the hands of medical men, and each municipality should have a public disinfecting chamber, as in Berlin. [The disinfecting apparatus of Geneste and Herscher is a metallic cylinder 1.3 metres (4½ feet) in diameter and from 2 to 4 metres (6½ to 13 feet) long. The cylinder is closed and made air-tight by means of two doors, supported on wheels, one at each end; the doors are made steam-tight by clamp-screws. In the interior of the cylinder there is a car running on an iron track, on which the soiled articles are placed. Steam, generated by a neighboring boiler, enters the chamber by two sets of tubes—one to raise the temperature to 130° C., the other, pierced with holes 40 millimetres in diameter, to allow steam to enter the chamber when it is desired. The necessary pressure-gauges, thermometers, etc., are placed on the exterior of the cylinder.]

Disinfection and Isolation in Reference to the Control of Epidemics.—In opening a discussion ("Brit. Med. Jour.," Aug. 31, 1889) on this subject, Dr. H. Franklin Parsons, after referring to the epidemic diseases, mentioned the experiments of Koch in destroying the spore-bearing and non-spore-bearing micro-organisms, in which that observer had proved that carbolic acid had an inhibitory effect on their growth, spore-bearing forms requiring immersion for one or two days in a five-per-cent. solution, whereas a two-per-cent. solution only killed them in a week. Sulphurous-acid gas, in a six-per-cent. mixture, failed to kill spore-bearing organisms after four days' exposure. Dry heat (284° F.) would destroy spores in three hours; but this temperature would injure all textile materials. Steam at 212° F. would destroy spore-bearing forms in five minutes; and articles to be disinfected were easily penetrated by it. A watery solution of iodine or corrosive sublimate (one per cent.), or chlorine or bromine (two per cent.), would destroy spore-bearing organisms after one day's immersion. The carriers of infection were the body of the patient, the excreta and the skin, the air tainted by exhalations from the sick, clothes, bedding, etc., articles of food, walls and floors of dwellings, collections of filth, dust on walls or in cracks, and sewage. The body may be disinfected by suitable washes, and, after death, buried in lime or charcoal. The air may be extracted from the sick-chamber and burned in a furnace or in a ventilator containing burning gas-jets. Discharges from the nose and throat may be received on rags and burned; those from the bowel and kidneys should be received in vessels containing a five-per-cent. corrosive-sublimate solution. Clothing, bedding, etc., should be exposed to steam, or, where that is impracticable, boiled after having been immersed for some hours in a bichloride-of-mercury solution. Books and letters should be exposed to dry heat for some hours. Thorough boiling of water or milk, or cooking of food, will disinfect food stuffs. For house disinfection, sulphurous acid or chlorine is recommended, followed by scrubbing of the walls, removal of paper, and whitewashing where practicable.

In the discussion that followed, Dr. P. C. Smith, of Glasgow, considered that there were two divisions of the subject: disinfection and isolation; first, in hospitals; second, at home. Cities should have pavil-

ions for the different zymotic diseases; towns, a cottage hospital, with a tent (or portable house) for small-pox; they should have steam disinfecting chambers, and the clothing of typhus and small-pox patients should be burned. At home the room occupied should be in the top story, divested of carpet and furniture, save a bed and chair for the nurse. There should be no communication between the nurse and the occupants of the house; food, etc., being placed on a table at the door. Disinfection of discharges, clothing, the room, etc., should be done as mentioned by the first speaker.

Dr. W. Squire, of London, considered the public establishment of good wards, good nursing, and care to attract the attention of those in need, as the first essential. If the hospitals could not care for patients until convalescence was completed, there should be convalescent homes. In the scarlet-fever hospitals in London, in 1887, 3,000 patients had been treated, with a mortality of 267; in 1888, 4,408 patients; in 1889, 5,900 patients. These figures showed the increasing usefulness of those hospitals, and showed that the mortality from the disease had decreased.

Dr. Hope, of Liverpool, considered "domestic isolation" a fallacy, and instanced eighty cases of typhus fever so treated, in which the disease had spread to 386 individuals of the families, with 62 deaths. Contrasted with this were eighty cases in which the patient was at once removed to the hospital and the house disinfected and cleansed, and no extension of the disease took place.

Dr. C. H. Allfrey spoke of the isolation of persons with infectious diseases in hotels, citing a case where great care had failed to secure rigorous quarantine. He advocated an association of hotel-keepers that would insist upon the removal of all members of an infected family as soon as possible, the declaration of all visitors that they were free from and had not been exposed to infection, and the establishment of a register of sanitarily certified hotels. [The British Medical Association adopted a resolution to this effect.]

Dr. Littlejohn stated that in Edinburgh the removal of patients with infectious disease was compulsory.

The Contamination of Drinking-water with Lead.—Dr. Sinclair White (*ibid.*), as the result of extensive experiments, concludes that acid water invariably acts on lead, the intensity of action varying with the acidity; new lead pipe being acted on more than old, the amount of lead dissolved increasing for the first twenty-four hours, and materially decreasing at the end of six days. Other things being equal, the greater the pressure of the water the greater the amount of lead taken up, and the greater the temperature the greater the solvency. A small amount of lime or soda diminishes the solvent power of the water, and filtration through limestone, charcoal, or spongy iron causes the water to become inert; filtration of water containing lead through the two latter substances will remove the lead. Where lead-dissolving water exists, wrought-iron, tin, or glass-lined iron pipes and tanks should be employed, or the water should, before distribution, be filtered through beds of fine sand and broken limestone.

Dr. Fairclough believed that much of the anæmia of town people was due to drinking water containing small quantities of lead. He referred to the fact that some waters formed an insoluble crust on the interior of new lead pipes in two or three weeks, thus forming a permanent protection.

Dr. Whitelegge recommended that water pipes be made of Borff iron, as it had the property of withstanding rust.

The Physiological Value of Meat Foods for Invalids.—Surgeon-General C. M. Jessop (*ibid.*) believes that there is considerable waste in the preparation of beef teas, because nurses and cooks try to make a "clear" solution. Referring to the physiological metamorphosis of nitrogenous substances, he concludes that at least 138 grains of nitrogen, or six ounces of meat, is the smallest daily amount necessary for the bare maintenance of life. Yet the extractum carnis made by slowly heating, until it boils, a pound of finely chopped beef in an equal quantity of water, is nothing but a solution of excrementitious substances and blood salts. Baron Liebig says: "By the addition of meat extract to our food, we neither economize carbon for the maintenance of the temperature nor nitrogen for the sustenance of the organs of the body, and therefore it can not be called food in the ordinary sense. Dogs fed exclusively on extractum carnis die sooner than those not fed

at all, which seems to be due to the deleterious influence of the potash salts contained in the extract." In prolonged illnesses the potash salts may impede nutrition by diminishing the absorption of oxygen by the blood globules, and, increasing the salts in the serum, interfere with the exhalation of carbonic acid. In an emergency one or two drachms of beef may be chopped to a pulp, placed in a cup with two tablespoonfuls of water, a pinch of salt being added, and the mixture heated for ten minutes and given at once. In making fluid meat-food there should be no remainder. Mince one pound of good beef, place it in a double boiler with two quarts of water, and boil for three hours, stirring it frequently with a wooden masher; pass it through a colander to remove the fiber, and season with salt if necessary. The mixture is wholesome and may be administered in necessary quantities every three or four hours.

Cholera in Malta during 1887.—In an interesting review on the Seventeenth Annual Report of the Local Government Board (for 1888), Lieutenant-Governor Hutchinson's "Note on the Present Prevalence and Extent of Cholera in Malta," and Dr. S. L. Pisani's report as chief government medical officer for that colony, the "Practitioner" for May, 1889, concludes that an analysis of these reports demonstrates that, in the interests of public health and of the commercial interests of the world, "the antiquated and ever-failing quarantine restrictions should be done away with, and an efficient sanitary administration substituted for them." Cholera first prevailed in Malta from June 9 to October 11, 1837—4,462 cases occurring in towns, 3,105 in villages; 2,207 deaths took place in the former, 1,585 in the latter. The second epidemic, imported from Barbary, lasted from June 9 to October 13, 1850; there were 4,029 cases, with 1,736 deaths. The third epidemic lasted from June 9 to November 11, 1865; there were 2,362 cases and 1,479 deaths. In the fourth epidemic, from July 5 to November 25, 1867, there were 403 cases and 259 deaths. From August 3 to November 11, 1887, there were in the towns, with a population of 60,629, 155 cases with 110 deaths; in the villages, with an aggregate population of 76,161, there were 471 cases with 352 deaths. In the villages the houses were often overcrowded, the ventilation was poor, there was no sewerage, and there was often no good potable water—the supplies being liable to pollution. In the towns the houses are drained, there are sewers, and there is a plentiful supply of good water. Consequently the epidemics have decreased in severity in the towns and increased in the villages. During the last four epidemics quarantine has been practiced; nevertheless, means have been found to evade the restrictive law. Dr. Pisani concludes that, if the villages were drained and supplied with water, the houses of the poor inspected and improved, and all blind alleys opened, the island would become "an unfertile soil for the cholera germ." The "Practitioner" believes that a recognition of these facts—supported by the statistics of the towns of the island—and a disbelief in any efficiency in quarantine will enable Malta (as well as other localities) to avoid future epidemics.

Leprosy in the British Possessions.—In 1884 the medical profession of the Cape of Good Hope, says the "Practitioner," became convinced that leprosy was increasing, and an act was passed reciting this fact and providing that if a person was certified to be suffering from leprosy, he or she should be removed to a leper hospital, to be there detained. The disease is chiefly confined to the blacks and half-castes; though Europeans are affected. In Jamaica, where there are seven or eight hundred lepers, there is a difference of opinion as to its increase. In Trinidad the number of patients in the hospital has increased, and it is maintained that this is out of proportion to the increase in the population. In British Guiana, where one in five hundred of the population is leprosy, the disease is believed to be increasing, not only among the coolies but among creoles as well. In Barbadoes the population has increased six per cent., leprosy twenty-five per cent. In New Brunswick leprosy has decreased, but it has appeared among the Chinese in British Columbia. In India the census of 1881 gave 131,168 lepers; there is no evidence as to its increase or diminution. In the Mauritius leprosy is at a standstill. In Australasia it has appeared among the Chinese, Malays, Arabs, and Hindus. [There is certainly some leprosy in the Bahamas, for cases have appeared at Key West from there.]

The Heredity of Leprosy.—Dr. G. A. Hansen, the discoverer of the *Bacillus lepræ*, has made an investigation of the present condition of

160 Norwegian immigrants that had settled in Wisconsin, Minnesota, and Dakota ("Arch. f. path. Anat. u. Physiol. u. f. klin. Med.," exiv). He has been able to find only thirteen of the original immigrants; a few more may be living, but nearly 147 are dead. Of all their descendants, so far as great-grandchildren, not one has become a leper. There are many Norwegians in those States descended from or related to lepers, yet the disease does not increase nor has it proved hereditary.

The Royal College of Physicians on Quarantine.—The arrival of the steamship *Neva* at Southampton, in June last, with one case of yellow fever on board, caused the Privy Council Office to order her into quarantine for seven days. The "Practitioner" thought the Privy Council was to be congratulated that the occurrence took place at the only spot on the British coast that maintained a quarantine station (two hulks, at the entrance of the harbor). The Secretary of State for the Colonies submitted to the Royal College of Physicians the question of the proper periods of detention for purposes of quarantine in yellow fever, cholera, and small-pox. The college reported that the incubation period of yellow fever and cholera was uncertain, and that the committee was of the opinion that it was unwise to impose quarantine restrictions in the case of these diseases. The committee was further strongly opposed to such restrictions generally, which it considered harmful and vexatious. In the case of small-pox the committee was of the opinion that the incubation period did not usually exceed a fortnight, and that suitable precautions based on this knowledge were desirable. The "Practitioner" does not consider the last paragraph of the report very helpful, especially as vaccination is the obvious means of preventing small-pox.

Miscellany.

The New York State Medical Association will hold its sixth annual meeting at the Hotel Brunswick, Fifth Avenue and Twenty-seventh Street, New York, on Wednesday, Thursday, and Friday, the 25th, 26th, and 27th inst., under the presidency of Dr. William T. Lusk. The programme includes the following titles: An address by the president, on "Tubal Pregnancy"; "Inversion of the Uterus; Novel Treatment," and "The Latero-dorsal Position in Gynæcic Irrigation," by Dr. George E. Fell, of Erie County; "The Treatment of Uterine Fibroids by Electricity," by Dr. Henry D. Ingraham, of Erie County; "Pelvic Cellulitis in Women," by Dr. W. H. Robb, of Montgomery County; "Report of a Case of Laparotomy for Ruptured Pylorus; Error in Diagnosis; Recovery," by Dr. C. S. Wood, of New York County; "The Use and Abuse of the Forceps in Obstetrics," by Dr. J. P. Garrish, of New York County; a discussion on "Tubal Pregnancy," by Dr. William T. Lusk, of New York County, Dr. William Goodell, of Pennsylvania, Dr. George T. Harrison, of New York County, Dr. Howard Kelly, of Pennsylvania, Dr. Theophilus Parvin, of Pennsylvania, Dr. Isaac E. Taylor, of New York County, Dr. T. Gaillard Thomas, of New York County, Dr. Ely Van de Warker, of Onondaga County, Dr. W. H. Parrish, of Pennsylvania, and Dr. W. H. Wathen, of Kentucky; "Prognosis in Pulmonary Phthisis; How much has it been Improved and by what Means?" by Dr. Avery Segur, of Kings County; "Affections of the Eye Symptomatic of Disease of the Central Nervous System," by Dr. Alvin A. Hubbell, of Erie County; "A New Portable Accumulator," by Dr. Robert Newman, of New York County; "The Warming and Ventilation of Public School Buildings," by Dr. Ira B. Read, of New York County; "A Word in Favor of Free Dispensary and Free Hospital Work," by Dr. E. J. C. Minard, of Kings County; "The Microscope in Diagnosis; Personal Observations," and "Forced Respirations; Additional Observations," by Dr. George E. Fell, of Erie County; an address in surgery, by Dr. Francis Bacon, of Connecticut; "Alcoholic Paralysis," by Dr. T. D. Crothers, of Connecticut; "A Few Fads," by Dr. H. D. Didama, of Onondaga County; "Some of the Uses of the Transfixion Ligature," by Dr. T. H. Manley, of New York County; a discussion on "The Treatment of Hernia," by Dr. Joseph D. Bryant, of New York County, Dr. William T. Bull, of New York

County, Dr. Charles W. Brown, of Chemung County, Dr. T. H. Squire, of Chemung County, Dr. Charles L. Squire, of Chemung County, Dr. W. S. Tremaine, of Erie County, Dr. Roswell Park, of Erie County, Dr. Charles McBurney, of New York County, Dr. John A. Wyeth, of New York County, Dr. D. M. Totman, of Onondaga County, Dr. Leroy J. Brooks, of Chenango County, and Dr. Frederic S. Dennis, of New York County; "Lantern Views of Bacteria," by Dr. Edward K. Dunham, of New York County; an address in medicine, "On the Bacteriological Test of Drinking Water," by Dr. Edward K. Dunham, of New York County; "The Cure of Hæmorrhoids by Excision and Closure with the Buried Animal Suture," by Dr. Henry O. Marey, of Massachusetts; "Report of a Case of Ataxic Paraplegia," by Dr. Darwin Colvin, of Wayne County; "Observations on Dislocations of the Hip," by Dr. U. C. Lynde, of Erie County; a discussion on "The New Hypnotics: Sulphonal, Amyl Hydrate, Hydrobromate of Hyosine, Hypnone, Paraldehyde, Urethane—their Therapeutic Applications, Contra-indications, Toxicology, and Methods of Administration," by Dr. William H. Flint, of New York County, Dr. Austin Flint, of New York County, Dr. E. G. Janeway, of New York County, Dr. Charles Rice, of New York County, Dr. Charles G. Stockton, of Erie County, and Dr. John G. Truax, of New York County; "Extraction of Cataract without Iridectomy," by Dr. Charles Stedman Bull, of New York County; and "Two Cases of Angular Deformity of the Knee Joint," by Dr. Lewis Hall Sayre, of New York County.

A Foreign Body in the Urethra.—Dr. Albert Krog writes to us as follows:

"A mother called upon me with her little boy, of about five years of age. Upon examination of the boy, I found an extremely tender penis. The glans was very much swollen and inflamed, and from the opening of the urethra a very thick, greenish-yellow pus made its appearance. The little fellow seemed to suffer much pain. Micturition was hardly possible. The mother then informed me that her little boy had already been under the treatment of an old physician for the preceding four or five days, who, under the impression of a gonorrhœa purulenta, had well dosed him with enebis and opoiba. Nevertheless, his condition had grown worse and more alarming. A more minute examination seemed to reveal to me a specially tender spot along the urethral canal, and, on introducing a slender forceps, I extracted a small piece of wood, which had been the cause of all the trouble. Cold applications allayed all the concomitant symptoms."

The Southern Surgical and Gynæcological Association will hold a meeting in Nashville, Tenn., on the 12th, 13th, and 14th of November, under the presidency of Dr. Hunter McGuire, of Richmond. The preliminary programme includes the president's annual address and the following titles of papers: "Report of Gynæcological Work, with especial Reference to Methods," by Dr. R. B. Maury, of Memphis; "Direct Kelotomy, with Cases," by Dr. W. O. Roberts, of Louisville; "Open Abdominal Treatment," by Dr. B. E. Hadra, of Galveston; "The Abortive Treatment of Acute Pelvic Inflammation," by Dr. Virgil O. Hardon, of Atlanta; "The Importance of Early Treatment of Inflammatory Affections of the Uterus," by Dr. William C. Dabney, of University of Virginia; "The Relation of the Nerve System to Reparative Surgery," by Dr. Thomas O. Summers, of Jacksonville; "Concerning the Causes of Frequent Failure of Relief of Reflex Symptoms after Trachelorrhaphy," by Dr. W. F. Hyer, of Meridian, Miss.; "Cranial Surgery," by Dr. De Saussure Ford, of Augusta, Ga.; "The Treatment of Ectopic Pregnancy," by Dr. W. H. Wathen, of Louisville; "Laparotomy in Extra-uterine Pregnancy," by Dr. Waldo Briggs, of St. Louis; "Epi-thelioma of the Penis, with the Report of a Case," by Dr. D. W. Yandell, of Louisville; "Laparotomy in Intestinal Obstruction," by Dr. C. Kollock, of Cheraw, S. C.; "An Experimental Study of Intestinal Anastomosis," by Dr. John D. S. Davis, of Birmingham, Ala.; "Operative Interference in Ascites," by Dr. Hugh M. Taylor, of Richmond; "Observations pertaining to Pregnancy and Parturition," by Dr. W. Duncan, of Savannah; "Puerperal Convulsions," by Dr. J. Herbert Claiborne, of Petersburg, Va.; "Some Remarks upon Aneurysms, relating more especially to their Surgical Treatment," by Dr. F. T. Meriwether, of Asheville, N. C.; "Coecygodynia and its Treatment," by Dr. Hunter P. Cooper, of Atlanta; "The Improved Cæsarean Section *versus* Crani-

otomy," by Dr. W. D. Haggard, of Nashville; "Conservative Surgery in Injuries of the Foot," by Dr. J. T. Wilson, of Sherman, Texas; "Gun-shot Fractures of the Femur," by Dr. John Brownrigg, of Columbus, Miss.; "Tropho-neuroses as a Factor in the Phenomena of Syphilis," by Dr. G. Frank Lydston, of Chicago; "Trophic Changes following Nerve Injury in Fractures, with a Report of Two Cases," by Dr. W. Perrin Nicholson, of Atlanta; "The Treatment of Malignant Diseases of the Rectum," by Dr. W. T. Briggs, of Nashville; "The Achievements of Modern Surgery," by Dr. J. Ewing Mears, of Philadelphia; and "The Treatment of the Pedicle in Suprapubic Hysterectomy," by Dr. William M. Polk, of New York. In addition, papers on subjects not yet determined on are announced to be read by Dr. W. L. Robinson, of Danville, Va.; Dr. W. B. Rogers, of Memphis; Dr. L. S. McMurry, of Danville, Ky.; Dr. E. J. Beal, of Fort Worth, Texas; Dr. E. Burke Haywood, of Raleigh; Dr. Paul B. Barringer, of University of Virginia; Dr. J. F. Y. Paine, of Galveston; and Dr. Joseph Price, of Philadelphia.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending September 13th:

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Scarlet fever.	Typhus fever.	Enteric fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Sept. 7.	1,530,281	709						15	3	16	2	15
Chicago, Ill.	Aug. 31.	1,100,000	389						16	3	21	1	3
Philadelphia, Pa.	Aug. 31.	1,040,245	410						21	3	6		5
Philadelphia, Pa.	Sept. 7.	1,040,245	343						16	6	5		1
Brooklyn, N. Y.	Sept. 7.	834,607	335						9	5	16	1	3
Baltimore, Md.	Sept. 7.	500,343	157						7	1			
St. Louis, Mo.	Aug. 31.	450,000	162						4	1	3		2
St. Louis, Mo.	Sept. 7.	450,000	138						4		4		1
San Francisco, Cal.	Aug. 30.	325,000							3		1		1
Cincinnati, Ohio.	Sept. 7.	325,000	108						5	2	1		1
New Orleans, La.	Aug. 31.	254,000	104							2			
Pittsburgh, Pa.	Sept. 7.	230,000	101						9	1	5		2
Minneapolis, Minn.	Sept. 7.	200,000	37						2	1			
Kansas City, Mo.	Aug. 31.	180,000	51						6	1			1
Rochester, N. Y.	Aug. 31.	130,000	57						2				
Rochester, N. Y.	Sept. 7.	130,000	51						1		2		
Providence, R. I.	Sept. 7.	127,000	54						2		2		1
Indianapolis, Ind.	Sept. 7.	124,450							4				
Richmond, Va.	Aug. 31.	100,000	39								1		
Denver, Col.	Aug. 30.	100,000	37						7				
Denver, Col.	Sept. 6.	100,000	40						2		2		1
Toledo, Ohio	Sept. 6.	89,000	21							1			
Fall River, Mass.	Sept. 7.	69,000	41							1			
Nashville, Tenn.	Sept. 7.	65,153	36							2			
Charleston, S. C.	Sept. 7.	60,145	34							1			
Lynn, Mass.	Sept. 7.	50,000	14								1		
Manchester, N. H.	Aug. 31.	42,000	14							2			
Portland, Me.	Sept. 7.	40,000	8							1			
Galveston, Texas	Aug. 30.	40,000	3								2		
Council Bluffs, Iowa.	Aug. 19.	35,000	5										
Council Bluffs, Iowa.	Aug. 26.	35,000	2										
Council Bluffs, Iowa.	Sept. 2.	35,000	5										
Council Bluffs, Iowa.	Sept. 7.	35,000	5								1		
San Diego, Cal.	Sept. 4.	32,000	2										
Binghamton, N. Y.	Sept. 7.	30,000	6							8			
Auburn, N. Y.	Sept. 7.	26,000	9										
Haverhill, Mass.	Aug. 31.	25,000	14							1			
Haverhill, Mass.	Sept. 7.	25,000	9										
Rock Island, Ill.	Sept. 1.	16,000	2										
Rock Island, Ill.	Sept. 8.	16,000									1		
Keokuk, Iowa.	Aug. 31.	16,000	2										
Keokuk, Iowa.	Sept. 7.	16,000	1										
Pensacola, Fla.	Aug. 31.	15,000	1										

The Rarity of Christian Charity.—In the Journal of the 10th ult. we referred to the refusal of the Mayor of New York to furnish dogs from the pound to some gentlemen engaged in making certain surgical and bacteriological experiments. The request of one of the experimenters was given considerable newspaper notoriety, and he was recently the astonished recipient of the following letters, written from widely-separated localities. We print these anonymous communications *verbatim et literatim*, leaving all comment to our readers:

"You vile merciless rascally friend. I judge from your name you are a nasty Frenchman with no heart, and without a God. If you think you will be permitted to set up a place of Torture in this country for poor animals you are vastly mistaken. You will have to betake yourself to the vile and Godless country from which you came or to the

Hell to which you are destined, and if you wish to indulge in such fiendish performances when you reach the latter place—which I hope you will soon—unless you repent you will have an opportunity with kindred friends of torturing yourselves through the endless ages of eternity. I am a woman who despises brutes and all brutal actions."

"When pain the most awful sensation of the human frame exists—let its alleviation or study prove the sole lawful guide to future eases.

"Only the most damnable fiend cloaked in human form ever lifted the knife in vivisection. May the curse of an all merciful God rest upon you. Laugh, sneer, such as you do. But may every agony your hellish minds and hand inflicts be trebled upon yourself in this world and the one to come—and upon all like you. May your death bed be such a scene of horror that all will forsake you. May God's curse be upon you."

Possibly some may recall that once Professor Brown-Séguard, while demonstrating to his class certain physiological experiments on a dog, was assailed by a woman armed with a parasol; and we have been informed that Paul Bert once had a similar experience. So our experimenter, who, by the way, is not a Frenchman, may congratulate himself on having had only a verbal eastigation.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

A HITHERTO UNDESCRIBED
DISEASE OF THE OVARY;

ENDOTHELIOMA CHANGING TO ANGEIOMA AND HÆMATOMA.

BY MARY A. DIXON JONES, M. D.,
BROOKLYN.

So far as I know, this peculiar formation, or degenerative disease, of the ovary has not been described. The name kirsoma has been proposed on account of the peculiar convolutions that are manifested. The first one or two microscopical specimens showing this change I considered as curiosities, or as the initial stage of a growth which would possibly, upon further development, be alveolar sarcoma.

I have studied the subject, first by carefully considering the individual characteristics of each case, the symptoms, etc., and afterward the pathological condition of the specimen. Probably now it will be best to present the subject in that order: 1. Individual cases. 2. The microscopical appearances of the disease.

The patient in whom I first recognized this formation was operated on in my private hospital on May 25, 1885. She was thirty-five years of age, single. Her trouble commenced with a severe aching pain in the left side of the pelvis, which gradually increased year by year, extending to the other side of the pelvis, and frequently the pain was so sharp and lancinating that she screamed with agony. She consulted many physicians. Fly-blisters were repeatedly applied to the lower part of the abdomen. For nine months she was treated for "inflammation and misplacement of the uterus"; pessaries were used and only made her worse. Subsequently she was treated for "ulceration and uterine congestions," with no better results.

When I first saw the patient she was pale, emaciated, anæmic, and had very much the appearance of one who has phthisis. Examination showed the uterus to be acutely anteфлекed; ovaries tender and intensely sensitive. The patient was nervous, hysterical, and her mental conditions were much disturbed. Her friends said she was "not exactly right in her mind." I was fully convinced that the ovaries were in some way exceedingly diseased, and that all her abnormal nerve symptoms were due to reflex irritation from these diseased organs. I so informed the patient, and told her that an operation for their removal might be necessary. Still, I commenced with a course of treatment, hoping, if possible, to save her from the necessity of an operation; but she showed no improvement, and I became convinced I was only wasting time. So, on the 25th of May, I performed the operation. She made an excellent recovery, and since, her health has been good and she has been able to work. It would have been better if the diseased structures had been removed ten years before; every day they remained they were doing injury to the general system and interfering with her general health. A few months after the operation she took entire charge of her paralyzed mother through a long sickness. She stood it well, and ever since has been able to attend to her usual duties. I saw the patient on June 28, 1889. She seemed to be in good health and strength, and was doing the work for an ordinary-sized family.

This case was one of a series reported in the "Medical Record," August, 1886. A microscopical examination was

there given, and a drawing of the formation. I studied the subject in Dr. C. Heitzman's laboratory, and he said: "This tumor we shall have to term either an endothelioma or an alveolar sarcoma."

The next person in whom I found this growth or degeneration was a patient in the Woman's Hospital of Brooklyn. She first came with her mother to see me, March 30, 1887, a pale, emaciated, cadaverous-looking woman, apparently with tubercular consumption. She had been married some years, and had never had any children. She suffered with constant pain on both sides of the pelvis, increased by walking, and at times the pains were especially sharp and severe. The patient said she had had for years tenderness and soreness in the lower part of the abdomen; did not menstruate till she was sixteen, and then it was accompanied with great suffering. Examination showed that the ovaries were prolapsed, enlarged, and so sensitive that the patient shrunk from the slightest touch, and it was evident they were the seat of some form of disease which was in some way seriously deranging her general health. She had been treated by many excellent physicians, both locally and constitutionally, and they had done everything possible for her; still, I commenced a course of constitutional and local treatment, but with no better results, and finally decided there was but one way to relieve or cure the patient, and that was by removing the hopelessly diseased organs. This operation I performed in the Woman's Hospital of Brooklyn on May 10, 1887; it was completed in about fifteen minutes, and the patient recovered without a bad symptom.

Sections of the ovary showed this growth in great perfection and in a very advanced stage of development (Fig. 1). It seemed to occupy the whole ovary, extending quite



Fig. 1.—Endothelioma of the left ovary, extending to the periphery. $\times 25$. S, surface of the ovary; A, alveoli filled with endothelia.

to the periphery, and replacing all the special ovarian tissue. In one ovary there were some cysts the walls of which were formed by stratified layers of inflammatory tissue,* and this growth seemed to be extending or infiltrating itself into the already diseased tissue. In other instances the cyst wall is composed entirely of this growth, which seems so curiously to destroy all healthy or diseased tissue of the ovary, gradually occupying the whole structure.

Another remarkable feature of this case, and one which I have since recognized in many others—indeed in every instance of this disease—was an abnormal condition of the ova. There was not a normal ovum to be found. Many of them were broken up into inflammatory corpuscles. No epithelia, no maculæ, no yolk; in some the wall was changed into fibrous connective tissue; in some the follicles were enormously swollen and contained a hydropic yolk; others contained granular matter and hæmatoblasts, while in other places there was a complete atrophy of the ova, thus exhibiting a destruction of the most vital part of the ovary.

This fact opened a most interesting field for investigation, and presented a new cause for sterility. The patient had come to me not only to be relieved of her suffering, but, with a sorrowful heart, she wanted to know why she did not have children. Her cry was that of Hannah's: she had that deep-seated longing which is in every true woman's heart, which we all so fervently respect and admire, and which, if not gratified, makes life a disappointment. But the condition of this patient showed, as I have seen in many cases, that *the disease which had caused the suffering had also produced a confirmed sterility.*

This patient had long complained of tenderness and soreness in the pelvis, and that the marital relations were not only painful but repulsive and unendurable. After the operation her emphatic statement to me, as well as similar statements of many other patients, disprove the assertion that the removal of the ovaries destroys sexual desires. So far from it, this patient assured me to the contrary, and similar statements have been made to me by other patients.

In May, 1887, I presented to the New York Pathological Society a microscopical section of this growth. At my request Professor Prudden took a small section of the ovary of this patient, and had it prepared and mounted in his laboratory. He wrote me it was carcinoma, also sending one of the sections so labeled. I sent a microscopical section of the ovary of the same patient to Waldeyer, of Berlin; he replied, October 18, 1887, that it was *carcinoma.*

But, from studies and drawings I had made during the summer, I could clearly see that the protoplasmic bodies seemed to round themselves, the coarse granules wonderfully shaping themselves into blood-corpuscles. In some places the elongated protoplasmic bodies seemed to fuse together, forming canals in which were the shadows of

* In the microscopical study of the ovaries I have frequently found these small cysts, and never have seen one but it was surrounded by newly formed layers of inflammatory tissue, showing long-existing disease; frequently layers of secondary fibrous connective tissue, the results of the inflammation, again in a state of acute inflammation. These small cysts have a history of suffering; they are either the outcome of inflammation or have produced the inflammation.

blood-corpuscles, and then would appear the completely formed blood-vessel, and near by many cross-sections of blood-vessels completely filled with blood-corpuscles. These changes I traced over and over again, and saw them in other specimens; so it was clearly proved to my mind that *this growth was a new formation of blood-vessels and blood-corpuscles.* This statement was presented to the New York Pathological Society, December 12, 1888.

From further study I thought the growth essentially started from some mysterious change in the menstrual follicle, as represented in Fig. 2; the living matter shoots up

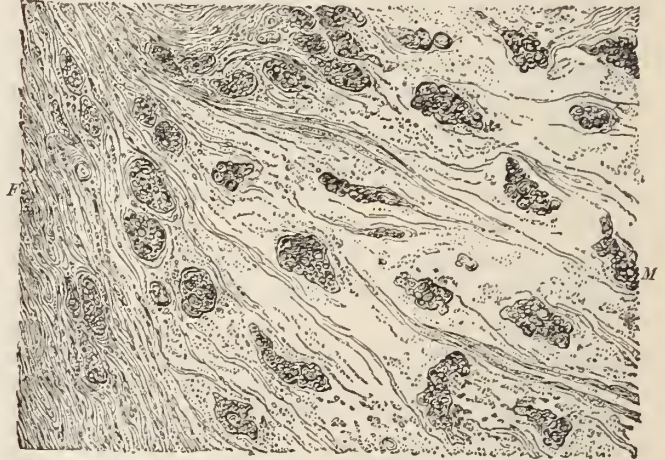


FIG. 2.—Myxomatous tissue of a menstrual follicle. $\times 500$. *F*, fibrous portion of the follicle; *M*, myxomatous portion filling the follicle. The protoplasmic bodies filled with hæmatoblasts.

like the lines of light of an aurora borealis; soon are found the granules and hæmatoblasts, and then commences the rapid growth, spreading and increasing. Other figures show a more advanced stage; the myxomatous portion is composed of nucleated traets of protoplasm. But why this growth should have the power of destroying every structure of the ovary, even firm secondary fibrous connective tissue, or why an ovary should so degenerate, or what is its pathological significance, are still questions for consideration. Certain it is that this formation is as surely accompanied with manifestations of ill-health as is the breaking down of lung tissue, and the symptoms of both diseases are in many respects similar. It destroys normal structure as effectually as does tubercle. When we look at this rapidly growing formation and the great masses of granules, the impression forces itself upon us that it *may* be malignant. Future investigation may prove it so. The cancer epithelia do not multiply more rapidly, or destroy the tissues more surely, or seem more threatening or monstrous in their appearance and growth.

If it were so that we could watch and study this growth from day to day, see its progressive changes and its general effects upon the system, we might tell the final result. Who knows how disastrous it is, or how fatal, or how many deaths it may have caused? Certainly it destroys the health, comfort, and usefulness of the individual, and as surely its removal has restored health, comfort, and happiness, as well as ability to work. If it were as possible to remove tuberculous lungs as this growth, or as we would a gangrenous

toe, or as successfully as we do diseased ovaries, how many could thereby be given relief and years of restored health!

Though this growth is apparently so fearful in its appearance, so destructive to healthy structures, yet from it develops only an army of little blood-corpuscles and forming blood-vessels. But may not this, apparently so innocent a formation, have a serious pathological significance? Why should these autochthonous collections of blood be here, while there is pallor on the face, a tallowy hue to the skin, and an emaciation of the whole body?

This disease seems in some way to destroy such important formations as the ova. Yet in the early stages, before the disease has so much extended, in some instances women with this growth have borne children. A healthy ovum even in the midst of a sea of disease may develop and fulfill its final destination.

The clinical features in this disease are so marked that in many instances I have diagnosticated it on the first examination, and this diagnosis was subsequently verified by microscopical examination of the diseased structure. All the patients complain of a special and characteristic pain in the region of the ovaries, at times severe, sharp, and lancinating; there is a peculiar pale or cachectic look, or the cadaveric pallor of the consumptive; they all have a marked emaciation. Some, who are naturally strong with a tendency to *embonpoint*, from the time of the development of the disease begin to emaciate; in some instances lose twenty, thirty, or forty pounds. The further advanced the disease, the more emaciated and the more extreme the pallor. The more the ovary is occupied or filled with this growth, the more serious the manifestations in the system. So pronounced are these symptoms, and especially in connection with the characteristic manifestations that usually accompany diseased ovaries, that a diagnosis can usually and with confidence be made. I have so verified it in many instances. Not long since I had two patients. Both had all the symptoms mentioned—pain, pallor, some loss of flesh, etc.; in both I diagnosticated this disease, and subsequent history of the cases proved it to be correct. A young woman came to me last spring. She had always been in good health. No suffering in any way till the previous five or six years, when, as she remarked, she had at times such pain and distress that she rolled on the floor in agony, and was so faint and weak that she could keep up only two or three days successively. She had been under the care of good physicians, and had been in two hospitals. In one an operation was proposed; in the other she was pronounced incurable. I felt confident she had endothelioma of the ovary, and an operation would relieve her sufferings. She was anxious for the operation, and, as it was evident her condition was growing worse, it was right that she should be relieved. The operation was performed in the Woman's Hospital of Brooklyn. She made an excellent recovery. Fig. 3 is a representation of the ovary. The same form of degeneration spreads elsewhere in both ovaries. The patient had chronic oophoritis, and much of the normal structure of the ovaries was changed in consequence; the arteries were seriously affected with endarteritis obliterans, and some were waxy. The ova were diseased. In the tubes many of

the epithelia were destroyed or changed to muco-pus, and there was an inflammatory infiltration of the mucosa.



FIG. 3.—Left ovary with an endothelioma loosely imbedded in the cortex. The ovary is halved; so is the nodule on the right upper periphery. On the lower half is seen the cavity previously occupied by the nodule. $\times 2$.

A few weeks ago a patient came to my office who had been married fifteen years and had no children. At the age of sixteen she was well and rugged; when twenty years of age she began to have pain in the pelvis, to lose flesh, and looked as if she were going into decline; now, at the age of thirty-five, she is worn out with suffering, and I feel confident she has endothelioma of the ovary which is surely and prematurely destroying her life. On August 9th a lady called to see me complaining of similar pains in the pelvis; had the same pallor, not so much emaciation, though she says she has lost thirty pounds in flesh; has been married ten years, and had no children. Without doubt she has the same trouble of the ovary, which has produced the pain and destroyed the ova. By carefully considering all the symptoms the disease can be diagnosticated in every instance.

The third patient in whom I found this peculiar growth was a Mrs. B., thirty years of age; came to me in March, 1887; the same story of suffering, distress, cramps, and extreme pain; not able to be around. Examination showed both ovaries enlarged, prolapsed, and extremely sensitive. Every motion of her body gave her distress, and she was entirely unable to attend to her household duties. Operation May 20th of the same year, in the Woman's Hospital of Brooklyn. Right ovary very much enlarged, pear-shaped, one end measuring two inches in diameter; the left ovary was less enlarged. The patient made an excellent recovery, and has now the physical vigor to carry on a large business, besides attending to her household duties.

Microscopical examination showed that both ovaries were entirely filled with this growth in an advanced stage of formation. The growth also formed the walls of some large cysts, and the ova, as far as examined, were diseased.

The fourth case of this form of degeneration was Miss C., single, twenty-eight years old, sent to me by Dr. B., of Bridgeport, Conn. The patient had been sick for more than a dozen years; had much suffering at her menstrual periods; had so broken down in constitution, and her general health was so enfeebled, that she was no longer able to attend to her ordinary

duties. Dr. B. writes "that everything possible had been done, and now evidently an operation was demanded." The patient was pale and emaciated. Her friends supposed she had consumption and that she was going into a decline. Examination showed that her lungs were sound and as strong as any part of her body, but that the ovaries were enlarged, dislocated, and exceedingly painful to the touch. She was admitted into the Woman's Hospital of Brooklyn. Further treatment gave her no relief, so an operation was deemed advisable, and, after consultation, was performed. The patient made an excellent recovery, and has since gained in health, strength, and flesh. She was able soon to resume her ordinary avocations, and she wrote me some months after: "It seems so strange to be free from pain"; said she "could not thank me sufficiently for all that was done; that before the operation she was the most miserable creature in the world; since, she was the happiest." She wrote June 14, 1889: "I am now in perfect health after fifteen years of suffering."

In this case also the entire ovary was filled with this remarkable and peculiar growth, except some little patches on the border, which were in a state of intense inflammation. No ova could be found. Near the periphery were some cysts, the walls of which were formed of this growth. This growth could be seen gradually invading and replacing every tissue. Some fields under the microscope looked like a sea of blood; near by were large blood-vessels clearly defined, with a well-marked endothelial lining and filled with blood-corpuscles.

CASE V.—Mrs. A., twenty-eight years old, married some years, no children, has pain in the pelvis all the time; ovaries and tubes extremely sensitive; marital relations so painful she can not endure them. She has suffered so much that she was anxious to have the operation. The ovaries were small, cirrhotic, not much larger than a bean, and covered with fine adhesions. All the ovarian structure was completely destroyed by the growth. The tubes were larger than the ovaries, and in a state of interstitial salpingitis. The patient seemed to do well.

CASE VI.—Mrs. II., forty-three years old. For some years her sufferings had been unusually severe, low down in the pelvis on both sides. At times the pain was agonizing; said she had not been able to perform any kind of labor. On September 9, 1887, I removed the diseased uterine appendages; they were in a mass of adhesions. The left tube was the size of a lemon; it, with the ovary, was firmly bound to the posterior part of the uterus. On the right the appendages were wedged down deep into the pelvic cavity. The ovary proved to have been transformed into a dermoid cyst. The tube was enlarged, firmly adherent, closed at the outer extremity, and all traces of the fimbriæ gone. The patient made an excellent recovery, and while there were serious complications in this case, probably this growth in the ovaries caused most of the patient's suffering.

CASE VII was also complicated by a diseased condition of the Fallopian tubes. The patient was twenty years old, had suffered for some time with diseased ovaries, married three years and a half, two children; last parturition followed by some septic troubles. She came to me suffering with severe pain in the pelvis, unable to walk or to attend to her household duties. Examination showed deep transverse laceration of the cervix; perinæum gone; also there was serious disease of the uterine appendages; but, as she had so lately borne children, I decided to do nothing more than repair the cervix and the perinæum. She was admitted into the Woman's Hospital of Brooklyn, treated for some six weeks, injuries repaired successfully, and the patient sent home. After her return home she still complained of such constant distress and so much suffering that she begged to re-enter the hospital, and was admitted. The uterine appendages were in such an extremely diseased condition that there was no relief for her except by their removal, which

I did in August, 1887. On both sides the appendages were buried in a mass of adhesions. Each of the ovaries formed part of the wall of an abscess cavity; each tube was completely closed at the fimbriated extremity, and in a state of intense interstitial salpingitis. There were numerous miliary abscesses in the walls of each of the tubes.

The patient made an excellent recovery, and is now in the enjoyment of perfect health. Microscopical examination of the ovaries showed that almost the entire structure was replaced by this growth. The ova were ruined. Her irreparable sterility had already been produced by the condition of the tubes.

CASE VIII.—Mrs. G., thirty-five years old, feeble and emaciated, complaining of constant pain in the pelvis. Her pulse and temperature varied little from 100. Her friends thought she was going into consumption. Examination showed the uterus retroflexed at the internal os, ovaries enlarged, tender, and low down in Douglas's *cul-de-sac*. All efforts were made by constitutional and local treatment to improve her general health and strength and relieve her suffering, but the distress in the pelvis continued, and an operation seemed to be her only hope. She was not only anxious for the operation, but disappointed at any delay. I performed laparotomy on May 2, 1887. The whole broad ligament was like wet paper; it melted under the ligature, bled profusely, tore off even to the corner of the uterus, but all was properly secured, and the patient did well. She has since been a woman of remarkable strength and vigor, without indications of decline or consumption, has done the work for a family of eight persons, and looks remarkably well.

All the normal structure of the ovary was destroyed by this growth. The ova were in a retrograde condition, many of them filled with granular matter, the nuclei breaking up into medullary corpuscles.

CASE IX.—Mrs. R., a pale, feeble, emaciated woman of twenty-three years, married five years, two children, youngest three years of age, has constant pain in the lower part of the pelvis, especially severe during the menstrual period and five days before; evacuation of the bowels produces great pain; coition also extremely painful; uterus retroverted and retroflexed; ovaries prolapsed; pessaries had been used without any good results, only increasing her distress. She entered the Woman's Hospital of Brooklyn, and I performed laparotomy on October 24, 1887. The growth in the ovaries is represented by Fig. 4. In one ovary two large cysts were found, surrounded by layers of inflammatory tissue. The ova were diseased.

CASE X.—Mrs. M., also a delicate, emaciated woman, with apparent consumptive tendencies and such constant distress in the pelvis that life was a burden. She was not able to care for her family, neither could she submit to the marital relations. I performed laparotomy for her in April, 1887. She made a good recovery. Both ovaries were small and in a state of cirrhosis, and occupied by this growth; tubes in a state of slight interstitial salpingitis.

CASE XI.—Miss W., thirty-nine years of age, single, pale, feeble, and emaciated. She commenced to be sick when she was twenty-five years of age, and has continued to grow in worse conditions, the pain increasing in severity. Much of her time not able to be out of bed. She was for a while in the Massachusetts General Hospital, also under an eminent specialist of Boston. He informed her that her ovaries were diseased, but that an operation would be exceedingly dangerous on account of her debilitated condition. She was in the Woman's Hospital of Brooklyn during the summer of 1888, returned in the fall, and in November of that year I removed the diseased tubes and ovaries. She made an excellent recovery, and has told me since "she was so much better, and so glad that she had had the

operation." She spoke of once being "rosy and fleshy," and how her sickness had made her "thin and pale," but that "since the operation she was regaining her flesh and rosy complexion."



FIG. 4.—An endothelioma of the ovary approaching the surface. $\times 250$.

She also said that "before she went into the Woman's Hospital she had suffered so much she did not expect to live, but that now she was gaining health and strength."

The ovaries of this patient showed a most remarkable and well-advanced condition of this growth. The whole ovarian structure seemed to be replaced by it.

CASE XII.—Mrs. T., forty years of age, consulted me in August, 1888; was in feeble health, pale, and emaciated; suffered constant distress in the pelvis; ovaries extremely sensitive; uterus pulled to the right by shortening of the right broad ligament. Nine years previously she had consulted an eminent specialist of Philadelphia, who told her she had inflammation of the ovaries. Since then her sufferings had continued to increase and her condition to grow worse till her nervous system was broken down and in an extremely irritable condition. So cachectic was she in appearance that some imagined she had malignant disease. She informed me that she wanted to be relieved, even if it were necessary to perform an operation. She asked me that the ovaries might be removed. This operation I performed in October, 1888, and immediately she began to gain in health and strength, and in a few weeks showed very much improved conditions.

The right ovary was somewhat enlarged, and most of it occupied by a fibroid growth. Microscopical examination showed a number of nodular fibromata, also enlarged blood-vessels, many of them in a state of endarteritis obliterans.

The left ovary was cirrhotic, changed to cicatricial tissue, the outcome of chronic oophoritis. In some portions of the same ovary I discovered globular deposit of lime salts, and within them angular protoplasmic bodies, like bone corpuscles—osteoid tissue. The Fallopian tubes showed chronic inflammation and were atrophied. But the most remarkable feature was this growth, invading and taking possession of both ovaries. The ova were diseased.*

Microscopical Representations of the Growth.—Fig. 4 represents the general appearance of the ovary in an advanced stage of development. Right ovary, $\times 25$. P, peritoneal layer. C, cortical layer, with numerous bundles of smooth muscles. V, fibrous connective tissue, in which the ovary has been transformed, freely supplied with capillary and venous blood-vessels. E, endothelioma of a markedly convoluted form, the depressions between which are filled outwardly with freely vascularized connective tissue, and inwardly by non-vascularized. F, coagulated fibrin. S, dense fibrous connective tissue, likewise exhibiting faint convolutions, and holding protoplasm in a reticular arrangement with pigment granules.

Here we see a narrow zone of the cortical substance of the ovary left, not exceeding in diameter one to two millimetres. The greater portion of the cortex is replaced by a convoluted tissue visible to the naked eye, being characterized by the presence of coarsely granular corpuscles arranged in a radiating direction and interrupted in many places by light gaps, which, on close examination, prove to be forming blood-vessels. A peculiarity of this formation is that it is bordered by a fibrous connective tissue on all sides. The difference, however, is that the connective tissue entering the depressions between the convolutions toward the surface of the ovary is richly supplied with blood-vessels, mostly capillary and venous in nature, while the connective tissue in the depressions looking toward the hilus lacks blood-vessels either entirely, or shows only a limited number, not exceeding the amount usually found in the cortical substance of the ovary. In many instances the spaces between the convolutions looking toward the hilus are filled with coagulated fibrin, and frequently coagulated fibrin fills all the space left between the convolutions and the hilus.

In another case, perhaps still more advanced, there is but little ovarian tissue left at the cortex, and the rest of the ovary is taken by a partly convoluted and partly irregular tissue, holding in its central portion numerous and large cavities, apparently filled with blood and fibrin. The growth seems to replace by degrees all the original structures of the ovary, transforming them into its own, and yet, in many instances, apparently not increasing the size of the ovary. In the most advanced stage of the disease, or in the highest degree of change, there may be no visible aug-

* Microscopical specimens from these ovaries were presented to the New York Pathological Society, December 12, 1888.

mentation of the volume of the diseased ovary. Sometimes it is really diminished in size.

Toward the outer periphery of the convoluted tissue we not infrequently meet with patches of an extremely dense fibrous connective tissue, the bundles of which are separated by branching protoplasmic masses, often supplied with dark-brown pigment granules.

Solid masses of either hyaline or slightly fibrous structure are often met with in ovaries, and are usually considered as the remnants of menstrual follicles. Hyaline masses especially are considered to be remnants of the structureless or basement membrane of a bursted follicle, and are probably the product of a plastic or formative inflammation ensuing after the rupture of a menstrual follicle. Not infrequently such a dense convoluted wall surrounds a markedly myxomatous structure, as is represented in Fig. 5, a menstrual follicle at the boundary between cortex and medulla of an ovary affected with endothelioma in a high degree, $\times 100$. A, fibrous connective tissue, such as we see in the medulla of the ovary, with numerous convoluted arteries of varying

more clearly represented by high powers of the microscope, as in Fig. 6, a menstrual follicle at the boundary between cortex and medulla, $\times 600$. F, dense fibrous connective



FIG. 5.—A myxomatous menstrual body. $\times 100$.

sizes. V, vein. C, convoluted wall of a probable menstrual follicle surrounding a myxomatous structure. N, transition between a dense fibrous and a less dense myxomatous tissue.

Low powers of the microscope suffice to show that the convoluted wall of such a follicle is not uniformly dense throughout, but often exhibits transitional features from a dense fibrous to a less dense myxomatous tissue. The wall under these circumstances still shows an irregular protoplasmic reticulum, when the meshes are filled with fibrous basis substance. This tissue blends with ordinary myxomatous tissue in which the meshes are filled with a hyaline or slightly granular basis substance. These features are



FIG. 6.—A myxomatous menstrual body. $\times 600$.

tissue composed of coarse bundles between which are few nuclei left. B, transitional tissue between fibrous and myxomatous, made up of protoplasmic tracts with nuclei at the points of intersection, and holding in the meshes a less dense basis substance. M, myxomatous portion composed of nucleated tracts of protoplasm, the meshes being filled with a mucoid basis substance, in which delicate offshoots of the protoplasmic tracts produce a delicate reticulum. The center of the mesh usually holds a nucleus-like body, apparently suspended in the mucoid basis substance.

Here we observe changes in the morphology of the basis substance from a purely fibrous to a purely myxomatous tissue. As an additional feature in the myxomatous portion we often observe light- or dark-brown pigment granules imbedded in the protoplasmic tracts, which is another proof of these bodies being remnants of menstrual follicles.

I have described these formations because some of my specimens tend to prove that the follicular wall is the tissue in which occur the morbid changes under consideration. I have seen the transitional portion between fibrous and myxomatous basis substance becoming transformed into polyhedral medullary corpuscles, known by the term endothelia. By this term histologists designate corpuscles of the connective-tissue series, meaning a growth of the medullary corpuscles to such an extent that they flatten one another, and thus assume similarity with epithelia. In developing bone such bodies have long since been known by the term osteoblasts—that is, bodies ready to be trans-

formed into basis substance. Whenever bone tissue becomes inflamed, the reappearance of the osteoblasts is one of the first symptoms of osteitis. Judging from analogy, the tissue of the follicular wall may likewise return into its medullary or embryonal condition, and cause the reappearance of medullary corpuscles in the shape of endothelia. The convoluted figure of the follicular wall may explain the convolutions of endothelioma.

There may be another source, however, of the convoluted dense formations in the ovary, more especially at the boundary zone between the cortex and medulla, or in the medulla itself. This process is endarteritis obliterans. I simply allude to this by no means rare occurrence, which I propose to study up at some future time. We find convoluted masses of considerable length, and can trace their origin from previous arteries, which, as is well known, have a markedly tortuous course in the medulla of the ovary. See Fig. 7, a solid convoluted mass of fibrous tissue—the early stage of endothelioma.

In specimens of endothelioma I have often seen obliterated arteries, especially at the boundary zone between cortex and medulla, and in the medulla. The final result is not only a transformation of a pervious artery into a solid tract, apparently structureless, or made up of dense fibrous connective tissue, but sometimes broad convolutions arise from hyperplasia of the adventitial coat leading to the new formation of convoluted granular masses, in the centers of which remnants of the arteries are recognizable by a few muscular fibers left unchanged. No trace of caliber is rec-



FIG. 7.—Convoluted fibrous tissue, the result of endarteritis obliterans. $\times 100$. A, a transverse section of a permeable, unchanged artery.

ognizable in such a remnant of an artery. This process may be another source of endothelioma, although I have not yet seen positive proof of a transition of such remnants into endothelial formations. On the other hand, endothelioma is often traversed by arteries exhibiting a marked condition of endarteritis.

The next question to be considered is, What are these coarsely granular corpuscles building up the formation under consideration? The nature of these bodies can best be seen in places where they are yet scanty and scattered in the fibrous connective tissue, as we often find in the vicinity

of well-developed endothelioma. Here we observe bodies of varying sizes between the bundles of fibrous connective tissue, distinctly flattening one another, whether they are present in groups or rows. See Fig. 8, hæmatoblasts changing to capillary blood-vessels, from a specimen of endothelioma

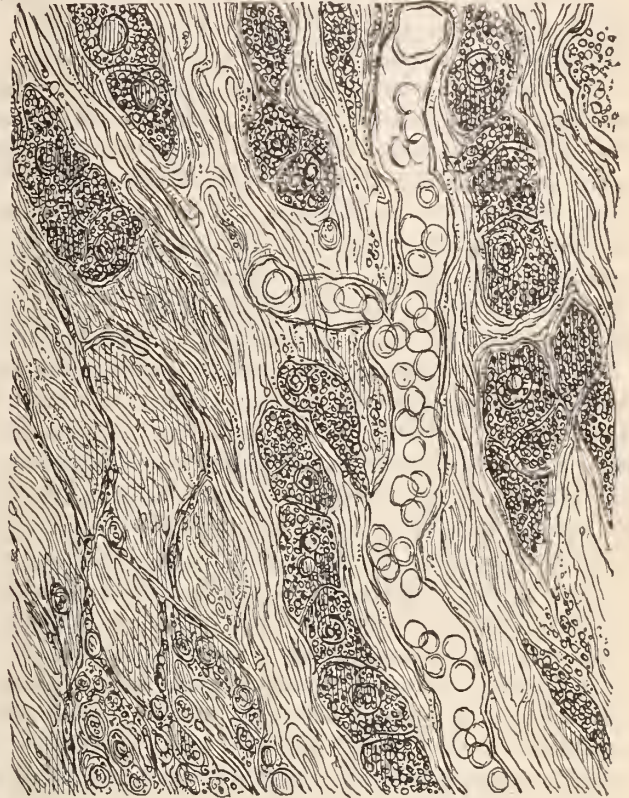


FIG. 8.—Hæmatoblasts changing to capillary blood-vessels. $\times 600$.

in the initial stage of formation. F, dense fibrous connective tissue, with a reticulum of protoplasm between the bundles, the bundles themselves partly transformed to lymph corpuscles. E, isolated and grouped endothelia. E', a bundle of fibrous connective tissue transformed into coarsely granular masses. C, capillary blood-vessels springing or developing from a row of coarsely granular bodies.

Bodies of this description are known since 1839, when Theodore Schwann described them as blood cells and, in his wonderfully acute power of observation, claimed that from them arose both the blood-corpuscles and the walls of the blood-vessels. Whenever an active new formation of blood and blood-vessels is going on, we invariably meet with such bodies. This is the case, for instance, whenever one tissue changes into another, when cartilage breaks up into medullary tissue preceding the formation of bone tissue, also at the border of the external epithelium of the enamel organ of the developing tooth, together with the active proliferation of the external epithelium thereof, and its transformation into medullary tissue. In 1872, pp. 100 and 341 of his "Microscopical Morphology," C. Heitzman described the same corpuscles as hæmatoblasts, claiming that every granule may eventually become a red blood-corpuscle, while the peripheral portions of the corpuscles, by fusion of hæmatoblastic substance, produce the walls of the blood-vessels. Since 1867 we have known, through the

studies of S. Stricker, that the capillaries originally are solid cords, which by vacuolation become hollowed out. Hayem (1877) discovered corpuscles in the blood smaller than red blood-corpuscles, and likewise termed them hæmatoblasts. Still later Ehrlich described coarsely granular bodies which were termed by him "Mastzellen," which means well-fed cells, which also proved to be either fat- or blood-forming elements.

In studying the coarsely granular corpuscles under consideration, we find a large number of homogeneous glistening granules and lumps within them, or scattered without being in the interior of sharply defined corpuscles, of a bright-yellow color, not taking up the stain of ammoniacal carmine. The close study of these granules shows their gradual change into red blood-corpuscles—a change easily traceable in almost any part of the specimen. There is no doubt we have before us hæmatoblasts in large numbers, either arranged in sharply circumscribed bodies or scattered in the fibrous connective tissue, from which in time red blood-corpuscles do originate. At the same time the peripheral portions of such coarsely granular bodies serve for the building up of the walls of blood-vessels, first of all of capillaries. Such newly formed capillaries have peculiarly fluted contours, reminding one of their origin from previous rows of coarsely granular bodies, and invariably contain a certain amount of red blood-corpuscles, or so called ghosts, apparently even before entering any communication with the vascular system. Not infrequently we see sprouts arising from the walls of such capillaries, either solid or filled with hæmatoblasts, or hollowed out, and being in connection with the main vessels by means of a comparatively narrow neck.

That the bodies filled with hæmatoblasts mainly serve for the new formation of blood-corpuscles and blood-vessels is easily demonstrated on any marked formation of endothelioma with high powers of the microscope. See Fig. 9, Ridger.



FIG. 9.—An endothelioma in full development, showing the change of endothelia into capillary blood-vessels. $\times 600$.

F, fibrous connective tissue at the border, showing the initial stage of formation of hæmatoblasts. E, endothelia more or less filled with hæmatoblasts. V, blood-vessels traversing the growth mainly in a radiating direction.

We observe radiating rows of polyhedral bodies which either contain a well-marked central nucleus, or, instead of this, one or several glistening lumps of a high refractive power. Between the bodies we can trace light narrow rims, usually traversed by delicate offshoots, obviously serving for an interconnection of the polyhedral bodies.



FIG. 10.—Endothelioma with a marked new formation of blood vessels. $\times 300$.

Ever since Bizzozero, of Turin, Italy, drew attention to the occurrence of endothelial growths strictly of a connective-tissue nature, the attention of the pathologist was drawn to tumors, holding a varying amount of such bodies, for which the name of endothelioma has been suggested. Further research has, however, revealed the fact that a tumor deserving the name of endothelioma does not exist. Endothelia, if grouped together in large masses, are either a prestage for the formation of a lipoma or an angioma.

In some instances I have been able to trace a large number of newly formed arteries at the periphery of an endothelioma, near the surface, where arteries, especially large arteries, do not occur in a normal ovary. The formation of arteries is represented in Fig. 10, an endothelioma with new formation of arteries, veins, and capillaries.

E, endothelia of comparatively small size filled with hæmatoblasts. L, lymph corpuscles in clusters. A, artery in transverse section. A¹, artery in longitudinal section. V, sinuous veins holding hæmatoblasts and red blood-corpuscles.

The development of veins goes on the same plan as that of capillaries, the only difference being the large caliber and sinuous or bay-like cavities along their course. The wall of such veins is made up of endothelia seen in edge view, or the wall appears to be continuous or homogeneous.

The arteries develop on the same plan with the addition of smooth muscle fibers around the wall. Whenever arteries are newly formed, we invariably find in their neighborhood clusters of lymph-corpuses — viz.: medullary corpuses more or less homogeneous, lacking nuclei, and not transformed into medullary corpuses filled with hæmatoblasts. So far as I could trace the formation of arteries, I am convinced that the muscle fibers arise from the previous lymph-corpuses in a manner described by Dr. Jeanette B. Green in her studies on the decidua.

Hæmatoma of the ovary is considered usually as an extravasation of blood into an ovarian cyst, in many instances giving very little disturbance to the system.

Endothelioma, on the contrary, leads to and terminates in a collection of blood by a change of tissue or a new formation, and seems to be of profound pathological importance, as it not only destroys the anatomical structure of the organ and consequently its physiological functions, but disturbs seriously, and in some instances destroys the health and comfort of the individual.

TWO CASES OF LARYNGEAL PARALYSIS, WITH A CONSIDERATION OF THE POINTS INVOLVED.

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THE peruser of recent medical literature, especially in the domain of laryngology, must often be struck with the divergence of views and the discrepancies of statement in works on laryngeal paralysis. There is an undoubted tendency toward bewilderment of mind the more one reads and studies the various experiments to settle the nerve supply and the *modus operandi* of the dilators and closers of the glottis with the complicated interrelation of the various contributory muscles. The laryngologist himself, if his experience is large, must from time to time see certain laryngeal paralysees whose ætiology, after the most exhaustive local and general examination, is a mystery. All other muscular groups are normal, and the patient may otherwise be in good health. Ascribing them to some pre-existing laryngitis or to rhenmatism or gout is far from satisfactory without an explanation of how these very common affections, in particular cases, can bring about such results. It has been the lot of the writer to see several such cases when the most careful local inspection and the most painstaking physical examination of the chest failed to disclose the cause. In most of these cases (all, I think) the immobile vocal cord was in the median line. The chagrin which they have caused has led me to study the two cases presented in this paper with more interest than they would have otherwise excited. They, of course, do not belong to the group of puzzling cases just mentioned:

CASE I. *Left Lingual and Laryngeal Paralysis; Atrophy of the Left Side of the Tongue.*—G. K., aged twenty-nine, a German shoemaker, came to the throat department of the Roosevelt Hospital on July 20, 1887. His family history is good. He had typhoid fever when twelve years old; otherwise he has never been sick, though always delicate as a child. He

is a moderate drinker of malt liquors. Nine years ago the patient had gonorrhœa and a chancre. He took medicine only four weeks, and had no secondary symptoms nor any trouble attributable to syphilis until four years ago. At that time he began to feel quite weak, but could go on with his work. He states that at that time he was treated for syphilis, but since then has never felt entirely well.

The weak feelings continue and he suffers often from pain in the back of the head and neck, which occasionally extends to the vertex. Last January (1887) he began feeling very much weaker, and noticed that he reeled to the left side when walking in the dark, and felt dizzy. He says his arms and legs felt as though asleep. These symptoms have grown gradually worse. Five weeks ago he suddenly noticed an impediment in his speech. He also began to swallow with difficulty, though he seems undecided as to the time at which this began. He says that when he drinks, the fluids come out of his nose. The patient has a cachectic appearance. His voice is nasal in tone, and he articulates indistinctly. His mental faculties seem normal. There is a slight paresis of the left side of the face, noticeable both in quiescence and when attempting to smile. He can, however, whistle fairly well. His general muscular power seems to be much less than one would expect from his appearance. When he closes his eyes and attempts to walk he falls to the left. On protruding the tongue it is seen to deviate markedly to the left side. There is considerable atrophy of the left side of it, apparent to the eye and appreciated by the finger.* No loss of taste or of tactile sense can be made out. There is no sensory paralysis anywhere. The left palatine arch is completely paralyzed. On laryngoscopic examination, the left vocal cord is seen immovably fixed in the median line. It seems loose and the edge rises slightly with expiration. The right vocal cord overrides it somewhat on phonation.† The cords are both congested. There is abundant muco-purulent secretion on the left side of the naso-pharynx and in the left nostril. There is no sterno-mastoid or trapezius paralysis.

Dr. T. T. Janeway, of this city, kindly made an examination of the patient's vision and of his hearing with the following results:

R. V., $\frac{20}{100}$; with $\frac{1}{36} = \frac{20}{100}$. L. V., $\frac{20}{100}$; with $\frac{1}{36} = \frac{20}{100}$.
Ophthalm.: R. $\frac{1}{36}$, L. $\frac{1}{36}$.

H. D. R. W. = 18". H. D. L. W. = 1". After inflation,
H. D. R. W. = 18". H. D. L. W. = C.

Aerial sound conduction better in both ears than bone.

Aerial and bone conduction both more reduced in left than in right ear. Tuning-fork in median line heard better in the right ear.

T. F. R., aerial, 19"; bone, 8". L., aerial, 4"; bone, 3". After inflation no improvement.

Urinary Examination.—Negative. No sugar. There is no appreciable lung lesion.

Treatment.—The patient was put on large doses of the iodide of potassium. The limit of tolerance seemed to be about half an ounce daily. During intermissions and along with it were given from time to time arsenic and the syrup of the iodide of iron.

The patient was under observation for about a year. Shortly after his first presentation he had three attacks of inspiratory dyspnoea, probably each time from food or drink dropping into the larynx. He also had a quite severe attack from an application of the solution of the chloride of iron to the congested

* The appearance was similar to the case represented in the "Berl. klin. Woch.," No. 29, 1887, reported by Pel.

† I give here the usual appearance. At times I was in doubt as to these minor appearances which are nevertheless so important.

vocal cords with a brush. At the end of a year, when he passed out of observation, there was the following change in his condition:

The dizziness and reeling to the left ceased soon after the commencement of the iodide treatment. The difficulty in swallowing was also soon overcome entirely. His articulation became distinct, though his voice was husky at times. The slight facial paresis disappeared. There was partial though not complete relief from the palate paralysis. His general muscular weakness was relieved so that he could resume work. There was no improvement in the lingual atrophy and paralysis, and no change in the laryngeal condition.

A second examination was made by Dr. Janeway four months after the first, with these results:

Eyes: R. V., $\frac{2}{100}$; with $\frac{1}{36} = \frac{2}{20}$. L. V., $\frac{2}{100}$; with $\frac{1}{36} = \frac{2}{20}$.
Ears: H. D. R. W. 12". H. D. L. W. 11".

Aerial conduction better in both than bone.

Bone conduction better in the right than the left.

Tuning-fork gave increase in duration both of bone and aerial conduction, the record being R., aerial, 25"; bone, 10". L., aerial, 17"; bone, 9". No improvement after inflation.

CASE II. *Left Laryngeal and Sterno-mastoid and Trapezius Paralysis.*—M. M., aged twenty-seven, a married woman and a native of Ireland, came to the Dennet Dispensary April 17, 1888. Her mother died of bronchitis(?); one sister died of consumption.

The patient is an exceedingly nervous and excitable person of limited intelligence. When a child she had lumps in her neck which disappeared later. Four years ago the patient "got a wetting." Since then she has not been unwell and has had "the whites." Alcoholic and specific histories are denied. Two years ago her voice began to be husky at times and she had occasional "choking fits." There was no cough at that time. Six weeks ago the patient began to cough and raise a little blood. She had pain in her back and her leucorrhœa increased. She became short of breath and began to have night-sweats with chilly feelings, followed in the afternoon by fever. Her appetite is poor. She has lost flesh and strength.

Examination.—Her general appearance is fairly good. The circulation in her extremities is poor. Her voice is exceedingly husky. At the apex of the left lung in front there is dullness on percussion, crepitant and subcrepitant râles, increased vocal fremitus, and roughened breathing. There is great tenderness to pressure and percussion over this area, which extends downward to the upper border of the third rib. Posteriorly the signs are not so marked. There is no other pulmonary change. There are no cardiac or aneurysmal indications.

Her voice is unsteady, at times clear, but usually somewhat husky.

The laryngoscope shows the left vocal cord and arytenoid cartilage immovable in the median line. The cord itself is congested and lax, and there is general laryngeal congestion, but no swelling or infiltration. The right cord moves spasmodically. There is no palate or facial paralysis. There is decided paresis of the upper portions of the left trapezius muscle and almost total paralysis of the left sterno-cleido-mastoid, but no restriction of the movements of the head.

It will be noticed in this history that the symptoms referable to the laryngeal paralysis antedated those assignable to the lung lesion about two years. The case when last seen was running the ordinary course of phthisis in the first stages, with no change in the laryngeal symptoms.

Now, in these two cases we have several points of great interest because of the doubts in which they are involved:

1. The peripheral manifestations of a central or nerve lesion.

a. The median position of the affected vocal cords.

b. The concomitant lingual paralysis and atrophy in one case and the paresis of the sterno-mastoid and trapezius muscles in the other, with other symptoms.

2. The character and situation of the lesions, whether in the cerebral cortex, the medulla oblongata, or at some point of the nerve trunks supplying the various muscles.

In order to make the conclusions arrived at clearer, it will be well to review, as briefly as possible, the literature of the subject bearing upon the salient points, and in the order named. Of course, it must be understood that nothing like completeness is intended or aimed at; that would be tiresome and useless.

We need not go back to Galen or even to Albers in pre-laryngoscopic days, but all the information of use is to be found in literature since 1860.

It will be noted that the term laryngeal paralysis is applied to these cases. This is for convenience rather than for exactitude of nomenclature. Until recently median position of the vocal cords was generally supposed to be due to paralysis of the crico-arytenoidæi-postici muscles.

As late as 1880 such an authority as Störk (1) said that paralysis of the postici was one of the rarest of laryngeal neuroses. A year later Semon (2) showed conclusively that it was by far the most frequent of all partial laryngeal paralyses. Almost simultaneously with the introduction of the laryngoscope into medicine we find an account of a case of median paralysis of one vocal cord. Lewin (3) gave, in 1860, a wonderfully good description of "paresis of the muscle of the right arytenoid cartilage which narrows the glottis and does not produce hoarseness," in a patient suffering from constitutional syphilis. In the same year Türk (4) described a case of right hemiplegia with immobility of the left vocal cord, which was displaced to the right of the median line. Three years later Gerhardt (5), who is usually credited with reporting the first cases, published his classical work on "Laryngeal Paralysis," with what appears to be the first account of the laryngoscopic appearances of a case of *double* "posticus paralysis." He reported eighteen cases of laryngeal paralysis in all, and in regard to a cerebral laryngeal center contents himself with saying: "Physiological data do not go far here. The superior roots of the accessorius, like the neighboring vagus, can be traced to the gray mass on the floor of the fourth ventricle." Many cases were afterward reported, and many theories advanced to account for them.

Bäumler (6) and Johnson (7), in 1872 and 1873, and later McCall Anderson (8) and Whipham (9), reported cases of bilateral paralysis of the vocal cords, some of them in the median position, which were due to pressure on one vagus nerve alone. Johnson (10), in another and a very able paper, explained this phenomenon on the strength of the researches of Rosenthal and Waller and Prevost, which were repeated by Professor Rutherford at Johnson's instance. Pressure on the trunk of the vagus may cause bilateral spasm or bilateral palsy, or spasm of one and palsy of the other side of the larynx, by reflex action due to the

decussation of the nerve fibers in the medulla, since the vagus is made up of both afferent and efferent nerve fibers, while pressure on the recurrent alone can only cause paralysis of the affected side. This he believed to be the cause of many cases of sudden dyspnoea in thoracic aneurysm. Finally he says: "It is probable that the long-continued irritation of the trunk of the vagus may gradually, as in the cases of traumatic tetanus, induce such demonstrable structural changes in the nerve center as will explain the bilateral palsy, which appears to be one of the results of this chronic nerve irritation." We see here a foreshadowing of part of what Krause years later announced as the results of his investigations. Indeed this article, as pointed out by Semon, has not received the attention and consideration it deserves in the history of laryngeal neurosis. Cohen's (11) recent remarkable clinical observation of the stimulation of the peripheral sensitive distribution of the pneumogastric in the larynx, causing temporary relief to a flagging respiration, is in line with this early work of Johnson.

Rosenbach (12), in 1880, called attention to the greater frequency of abductor paralysis, and Semon still further emphasized the point, showing that adductor paralysis from a central or nerve lesion was almost unknown.* Since then their respective claims to priority on this point have been urged with a persistence and an industry worthy of a better cause and of a more important subject. Various explanations of this preponderance have been advanced. Rosenbach said that "in the inspiratory closing of the glottis following a paralysis of the dilators there is not primarily a spasm of their antagonists, but a rhythmical perverse innervation in one direction only—namely, toward the adductors." This sentence has been widely quoted, probably on account of the obscurity of its meaning. It is needless to say that it has no experimental proof to stand on, and, if I understand it rightly, can necessarily have none, but must always remain a theory. Semon supposed the adductor and abductor filaments existed separately in the recurrent nerve, and advanced three hypotheses to account for the median position of the cords.

1. The abductor nerve fibers may be peripheral, and hence more exposed to external injury.

2. There may be a specific vulnerability of the abductor filaments, or when adductor fibers are partially disabled the other adductor fibers are able to carry all the adductor stimulus.

3. Possibly the nerve fibers receive an increment of nerve force from the superior laryngeal.

McKenzie (13) and Riegel (14) were inclined to accept the first supposition, the former suggesting that the nerve fibers were peripheral, the latter that they were together at one side. Semon himself leaned to the probability of the second hypothesis. It certainly seems to me that claiming a "specific vulnerability" is begging the question and is as unintelligible as Rosenbach's "perverse innervation." It leaves the problem, Why are the abductor filaments singled out for injury? unanswered.

* It should be remembered that in *complete* one-sided paralysis of the larynx the vocal cord is in the eadaveric position of Ziemssen, or half way between adduction and abduction.

The third hypothesis has received some support from the investigations of Mandelstamm (15) and Exner (16), and in Lennox Browne (17) it has a prominent though not an unreserved supporter. Many years ago Weir Mitchell, as quoted by Johnson, showed that the movements of the glottis in the turtle are due to two sets of muscles, the openers and the closers. The superior laryngeal nerve supplies both, while the inferior supplies only the openers. The superior laryngeal nerves were found to decussate at the base of the brain like the optic chiasm. The superior and inferior laryngeal nerves were separate throughout their course. If all nerves were cut but one superior laryngeal, the larynx movements would still obtain. Schech (18) and Schmidt (19) separately, in 1873, did much to formulate the arrangement of laryngeal innervation and muscular movement given by the text-books and accepted up to a recent date. According to the investigations of Exner and Mandelstamm, the thyreo-arytenoid muscle in its internal division receives its innervation almost exclusively from the superior laryngeal through a branch from its pharyngeal division, which they call the middle laryngeal. This muscle is a straightener and tensor of the vocal cord, and is supplied by both nerves on each side equally. The crico-thyroid muscle is also supplied by the superior laryngeal nerve of both sides equally, while the recurrent probably furnishes some fibers also.*

"The interarytenoid muscle apparently is supplied equally on the two sides by both the inferior and superior laryngeal nerves. It is probable that the other muscles, including the posticus, receive their principal nerve supply from the inferior laryngeal, though some of it from the superior laryngeal. Often the fibers of the superior laryngeal reach over to the other side posteriorly." Some arrangement of this kind was suspected twenty years ago by Türk (*loc. cit.*, p. 440). It has been urged that this arrangement does not in itself explain those cases where there is a bilateral median position with a central lesion, or a lesion in the vagus above the superior laryngeal. Neither does it explain the cases of Bäumlér and Johnson, nor why section of the recurrent causes total paralysis.

This brings us to a consideration of the theory of a spasmodic action of all the laryngeal muscles, or at least the principal ones.

Although Jeleneffy states (*loc. cit.*) that he announced in 1872 that the condition was due to spasm from irritation and not to paralysis, and although the same was hinted at by Johnson, as we have seen, the credit of demonstrating and emphasizing the fact by experiments on animals belongs to Krause (21). The conclusion he arrived at as a result of his very careful experiments was, in a few words, as follows: The irritation of pressure or disease, either along the nerve trunks or in the nerve centers themselves, causes a spasm of all the laryngeal muscles, and the adductor

* I have now a case under observation in which there was apparently a paralysis of the thyreo-arytenoid muscles with a paresis of the erio-thyroid and interarytenoid muscles on both sides. Besides the elliptical opening in the glottis on adduction, the cords had the peculiar rounded outline described by Störk. This latter soon disappeared, but the laxness of the cords still obtains. This condition supervened on the pharyngeal inflammation caused by swallowing carbolic acid. The patient is gradually recovering her voice.

muscles—resembling the flexor muscles of the extremities, to which they have been repeatedly compared—having the greater power, cause the vocal cord of the affected side to assume the median or adducted position. This position may be permanent or it may continue a shorter or longer time, and then, from the progress of the disease and a destruction of the nervous elements, change to one of complete paralysis, when the cords assume the cadaveric position. Of course this is a very crude statement of Krause's very elaborate article, to which reference must be made for the full force of the argument. It may be said here that complete adductor paralysis from a nerve or central lesion is almost or quite unknown, though some good observers have confessed their inability to invariably distinguish between the cadaveric position and complete abduction. Adductor paralysis, usually bilateral, is the rule in the hysterical form, which is never permanent.*

That Krause's conclusions have been subjected to many and very weighty criticisms can not be denied. His opponents, until lately, if not still, are in the majority, but Jeleneff's work, unless refuted by future investigations, must eventually establish the reality of Krause's conclusions, at least in the main. The former states—and his demonstrations are singularly convincing, at least to the writer—that not only is the crico-arytenoideus posticus an antagonist to the lateralis in its adducting power, but beyond a certain point is in some of its fibers a synergist. It also tends to fix the arytenoid cartilage on the cricoid, and prevents the vocal process from being depressed by the contraction of the lower fibers of the lateralis. By its counteraction it helps the thyreo-arytenoid and the crico-thyroid muscles to stretch and straighten the vocal bands. It assists the inter-arytenoideus also to approximate the arytenoid cartilages. The original article † must be consulted for an explanation of this somewhat complicated and yet, according to Jeleneff's demonstration, very obvious function of the posticus. Krause does not deny the possibility of the occurrence of posticus paralysis, but a little reflection will convince those who have seen many cases of the permanent median position of the cords that it must be a rare one if the above view of the action of the posticus is a correct one. Dr. Solis-Cohen (*loc. cit.*) seems to have adopted Krause's views at least as explaining the cases where there is lesion of the recurrens.

In 1885 Hooper (22) noticed in the dog that there was forcible abduction of the vocal cord from galvanic stimulation of the corresponding recurrent nerve when the animal was very profoundly anæsthetized, and adduction at other times. Krause noticed something of the same phenomenon. The former, therefore, said that the abductors belong to

* I have seen one case in which what was without doubt hysterical closure of the glottis was so persistent and caused such extreme inspiratory dyspnoea that tracheotomy with artificial respiration for half an hour were necessary to save the patient's life. Lately, after the lapse of six years, I have seen the patient, who wore the tube for many months. She still has occasional attacks of typical hysterical aphonia with an increase in other hysterical manifestations, but she has had no return of the nearly fatal dyspnoea.

† See for résumé "N. Y. Med. Journal," Aug. 31, 1889.

organic life, and denied their proclivity to paralysis. Donaldson (23) in the following year said it was only on weak stimulation that the cords were abducted, and that the abduction was not due to the etherization; but he also denied the greater proclivity of the abductors to paralysis. Semon and Horsley (24), while denying strenuously the validity of Krause's views, confirmed the statements of Hooper in regard to deep etherization, as well as those of Donaldson in regard to weak stimulation of the recurrens, but showed that, in repeating Hooper's experiments, Donaldson did not carry the narcosis far enough.

These authors also stated that in excision of the larynx in the living animal the postici muscles lose their contractibility before the other muscles, but Jeleneff (*loc. cit.*) has shown that this is due to their smaller size and their more exposed condition. While the writer is inclined to accept Krause's views in the main, there are some points which are not explained and some which seem to controvert them. When Remak (25) reported his case of lingual and sternomastoid paralysis with immobility of the right vocal cord, from injury to the nerves at the base of the skull, Fraenkel (26) seemed to think that this settled the question, reasoning that because there was paralysis of other muscles, there could not be spasm of the laryngeal group, but the posticus must be paralyzed. Without at all detracting from the force of this objection, which is open to much more serious criticism, it might be said that the history of laryngeal paralysees abounds in such examples, and the case of Remak is not unique. Case II, recorded here, is such an example. Fraenkel (27) himself has elsewhere advanced an objection that appeared much more vital to the spasm theory. It can not be denied that even in the cases where the lesion is central, and hence including the bulbar origin of the superior laryngeal nerve fibers, the vocal cord, although in the median position, is often, if not usually, lax during respiration, and occasionally is made tense only during phonation. It was difficult to see how this could occur during spasm of all the laryngeal muscles.

Jeleneff's article explains how it is that after atrophy due to the continued spasm we obtain a condition which is practically a paralysis of the posticus and thus allows a laxness of the cord to occur from the non-fixation of the arytenoid cartilage and the lack of counteraction to the crico-thyreoideus and thyreo-arytænoideus internus muscles.

Nevertheless, the objections to the spasm theory are less numerous and weighty than those of paralysis of the posticus alone, since it is supplied by the same nerve as most of the other muscles. This supposition is unsupported by experimental proof, and many well-established facts seem utterly irreconcilable with it. But argument is of little use. Clinical observation can only serve to keep alive the interest in the subject. Physiological experiment and anatomical research, repeated and varied, are the only methods by which the problem will be solved.

The concomitant lingual paralysis and atrophy in Case I is of only contributory interest to us. Although Fairlie Clarke (28), in reporting a case in 1871, declared that he was unable to find any case of lingual atrophy reported in literature, there is at least one by Dupuytren as long ago as 1832

referred to by Lendet (29), while Lande (30) in 1870 reported five cases. Since then, and indeed before, many cases have been reported by the French writers.

The other symptoms need only be referred to in speaking of the location of the lesions. In Case II the shoulder paralysis would indicate, as in Remak's case, that we have to do with a lesion of the vagus and accessory immediately after their exit from the skull. This is still further suggested by the history of glandular enlargement in the neck and by the fact that the phthisis of the left pulmonary apex began two years after the laryngeal affection. Moreover, the "choking fits" or "laryngeal crises" to which the patient had been subject, and the spasmodic action of the right vocal cord, point to an irritation of the vagus, as in the cases of Bäumlér and others mentioned. It is reasonable to suppose that there was pressure exerted by some enlarged cervical gland, although none could be distinguished upon examination.

In Case I, the lesion being evidently an intracranial one, we have two possible locations—a cortical and a bulbar.

The question of a cortical laryngeal center has been the subject of some interesting pathological and physiological investigations. Lewin (31), in 1874, examined a case with left hemiplegia and made out immobility of the left vocal cord in the middle line. There was no autopsy. So scanty are the data upon which to base a reliable localization of a laryngeal center in the cerebral cortex from pathological evidence, that the laryngoscopic appearance of every case of hemiplegia should be recorded for future reference on autopsy. Seguin's (32) cases which were reported in 1877 tended to show that the lower part of the third frontal convolution of the left side, especially in right-handed people, was the seat not only of speech, but of laryngeal movements. This, however, was far from conclusive, as no laryngoscopic examination was made. Indeed, until very recently, either the laryngoscopic or the post-mortem appearance of these supposed cortical lesions has been lacking in each case. Indeed, the case of Garel (33), so far as I know, is the only one in which, with a cortical lesion found at autopsy, there had been in life a laryngeal neurosis noted. There was in his case right hemiplegia with aphasia, and the left vocal cord was paralyzed, thus resembling the case reported by Türk many years ago and referred to above. Here, however, an autopsy was subsequently obtained, and, besides the ordinary hæmorrhagic lesion on the left side of the brain, there was a localized area of softening in the inferior part of the third frontal convolution on the right side. The report is meager in details and no account is given of the microscopic condition of the medulla. Dr. Delavan (34), in a recent paper published in this Journal, sums up the general testimony on this point in cerebral localization:

"1. Unilateral irritation of a given cortical center excites the corresponding bulbar center and causes bilateral movement.

"2. Unilateral destruction of a given cortical center gives no result, as the influence of the opposite cortical center is sufficient to excite the corresponding bulbar center, and thus to cause bilateral movement.

"3. Bilateral destruction of a given cortical center causes paralysis."

Now, from this standpoint we must conclude that there was a corresponding lesion of the same spot on the opposite side. If so, why was there not bilateral paralysis? A lesion on the left side of the medulla, which, without a microscopic examination, might have been overlooked, would be what we should expect. Garel, however, had a physiological basis on which to stand, and this possibly may have caused him to be a little hasty in his conclusions. Krause (35), in 1884, announced his experiments on the brains of dogs. He demonstrated that in these animals there was a center for the laryngeal adductors in the gyrus præfrontalis, the third frontal or Broca's convolution, near its anterior and descending end. In the neighborhood were also areas for the muscles of deglutition and of the neck. The channel of communication from this region to the medulla is probably through the corpus mamillare. These statements have been confirmed by Semon and Horsley (quoted by Delavan, *loc. cit.*). The electrical stimulation of this cortical area causes different laryngeal muscular actions in different animals—adduction in the monkey and dog, abduction in the cat. Dr. Delavan in the same year (1884) read a paper (36) before the International Congress, at Copenhagen, on a cortical localization of a laryngeal center, based on a case very much resembling Case I of this paper. This case on autopsy, however, showed the causative lesion to be in the medulla. Gottstein, in the last edition of his work on the throat (p. 302), in referring to the case, pointed out what afterward proved to be the correct situation of the lesion.

There are a sufficient number of carefully reported cases, as well as physiological data, on which to base a diagnosis of and locate a lesion in the medulla oblongata. Hughlings Jackson (37), in reporting some such cases in 1864, which were also seen by Mackenzie (*loc. cit.*), asks the question which now confronts us, "Where is the disease which suddenly produces together paralysis of the tongue, palate, and vocal cord, all on one side?"

His answer was more unsatisfactory than ours should be to-day, for since then a great deal has been done to supplement the work of Claude Bernard, Lockhart Clarke, and others.

Beginning at the widest part of the floor of the fourth ventricle, where the posterior border of the pons Varolii crosses it, we find an irregular mass of gray matter extending backward and downward to the posterior end of this lozenge-shaped space, where it becomes continuous with the gray matter of the spinal cord. Here, from before backward, the root fibers of the facial, acustics, glosso-pharyngeal, pneumogastric, and the upper roots of the spinal accessory have their origin. This is not only a motor, but a sensitive tract. The latter, known as the sensitive or ventral nucleus of the vagus, is deeper and a little higher than the dorsal or motor nucleus, though they are continuous with one another. The nucleus of the hypoglossus nerve is nearer the median furrow and parallel with the tract of the other. A careful comparison of Case I, with the symptoms noted and the lesions found in the cases of Senator (38) and Eisenlohr (39)

and Delavan (*loc. cit.*), as well as with others, helps us to a diagnosis and location by pathological evidence. It is probable that the lesion was most extended toward the lower and in the superficial parts of the mass on the floor of the fourth ventricle, where it would involve the nucleus of the hypoglossus and the motor nucleus of the vagus, leaving the sensitive tract uninvaded, since there was no sensory paralysis of any kind noted. It must have extended upward along the median furrow on the left side, involving the nucleus of the acusticus and slightly the facial to account for the facial paresis, the marked diminution of hearing on the left side, and the palate paralysis. The deafness, the difficulty of swallowing, and the tendency to fall to the left we saw improve under treatment. The lingual and laryngeal paralysis remained unchanged, as it usually does. To account for the giddiness, we have either to imagine that it was due to the involvement of the acusticus or to some interference with the blood-supply of the cerebellum. When we come to consider the cause and the nature of the lesion, it is probable, in view of the specific history and the result of treatment, that the patient had areas of softening and congestion due to disease of the coats of the left vertebral artery or its branches, the posterior spinal and the inferior cerebellar. The iodide of potassium relieved the areas where actual tissue necrosis had not taken place, and produced some amelioration of the symptoms, while further improvement could not be expected. It is a singular fact, noticed by Elsberg (40), that, although other muscular groups may recover with varying rapidity and completeness from paralysis, the power of the laryngeal muscles rarely returns. This may be due to the rapidity with which they atrophy on account of their small size.

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THE USE OF ALCOHOL IN MEDICINE.*

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THE subject of this paper is probably the oldest and most conspicuous article that has a place in the history of medicine. We read of it early both in sacred and secular history, not so much as a remedy in the treatment of disease, but as a beverage that, from those early periods of the world's history down all along these ages to the present time, has had more influence in the events chronicled by historians than have any or possibly all other causes combined. Noah planted a vineyard, and got drunk from his home-made wine and notoriously disgraced himself. Alexander the Great, the most illustrious general the world ever saw, died a delirious sot at the age of thirty-three. The wine indulged in by kings, statesmen, and generals has been productive of many wars that have cost millions of lives and the destruction of untold treasures, and have changed the boundaries of many of the nations of our world. In the domain of private and social life its power has been no less marked. The effects of alcohol upon the physical, mental, and moral powers of man are beyond estimation or computation. The flood-tide of evils that flow from its use has long been recognized and acknowledged by every unprejudiced observer. In fact, alcohol is to-day the greatest power known to the world that is constantly operating to dethrone reason, shatter the physical system, and bring on moral and financial ruin. The amount of alcohol consumed by the civilized nations of the world is almost beyond computation, and the avarice of man is introducing it into heathen and barbarous regions as rapidly as commerce and the work

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of explorers will permit. It has grown to be such an important article of commerce that its manufacturers and dealers are now an important factor in the political and law-making power of not only our commonwealth, but of every nation under the sun. The liquor oligarchy are dictators in many matters of political policy.

Thus much as a brief introduction to the power and influence of the subject of this essay. As conservators of the lives of our fellow-men, it behooves us to most seriously consider an agent capable of producing such devastating results before we "unchain the tiger," who, when once upon his victim, may never relinquish his grasp until all that is pure and noble, all that is wise and good, all that is lovely and desirable, has been drained from our brother-man, leaving only a bloated carcass and a curse, whose friends painfully endure until death comes to rid them of the living shame, when his poor, debased body has been buried from their sight, and their hearts are torn by the solemn thought that "no drunkard can inherit the kingdom of heaven."

Before beginning this paper I most carefully read the views of those authors who furnish the text-books on *materia medica* and therapeutics for the medical students of today, and then I did not wonder why it was that alcohol still held such a sway in our profession and among the laity, who naturally look to us as authority in this matter of the value of alcohol. For one, who has witnessed the action of this agent on the human system for thirty-two years in the practice of medicine, I earnestly protest against the teachings of most of our recognized authorities on this subject; to me their language and inferences are more befitting circulars issued by liquor dealers and manufacturers to advertise and recommend the great value of their products to enfeebled and diseased humanity. I quote first from Bartholow: "Alcohol is a useful food in the small quantity which increases but does not impair digestion, which quickens the circulation and gland secretion, but does not overstimulate, and which is within the limit of the power of the organism to dispose of by the oxidation processes." Oh, how habitual and so-called "moderate drinkers" will applaud this language, and how grateful perhaps we ought to be that there is one so wise as to state just how much and how often we should use this valuable and health-giving medicine! Hear our author still further: "This amount has been pretty accurately shown," says Bartholow, "to be one ounce to one ounce and a half of absolute alcohol for a healthy adult in twenty-four hours. All excess is injurious. . . . It is equally true that alcohol is, within certain limits, a food, and that the organism may subsist for a variable period on it exclusively." I take exceptions to all of these statements by this eminent author, and I can sustain my position by Dr. Benjamin W. Richardson, the eminent physician and author of London, who has been a close and able observer and scientific investigator of the influence and effects of alcohol. The results of the scrutinizing investigations of this distinguished physiologist and physician (though in some quarters disputed and their resultant teachings disregarded) have shown that the allegation that "alcohol is food" is not a fact, that it contains no element to nourish or repair the physical organism, and that the impression that

formerly existed—that it was of value to burn in the body and increase the temperature of the body when below par—is likewise a great delusion, for it has been proved again and again that the body will withstand cold and exposure far better without the alcohol than with it. We know that the first effect of alcohol is to increase the action of the heart and elevate the temperature, but that subsequently the temperature of the body falls lower than it was at first, and that the ultimate result is to lower the temperature—a reaction from the perturbing action produced by the stimulant—and that is why a drunken man freezes quickly when falling by the wayside undiscovered until too late to save him. We now turn to Bartholow again; we quote as follows: "Alcohol in small doses is a useful *stomachic tonic*. It is best taken for this purpose after or with meals. It is especially serviceable in the feeble digestion of old people, the atonic dyspepsia of the sedentary, and in the slow and inefficient digestion of convalescence from acute disease." Against all this, with due respect for our truly illustrious author, I take positive and decided issue. They are, in my humble judgment, utter fallacies. Alcohol gives no power; it only stimulates the natural processes, which need rest and carefully selected nutrients, and not the lash of alcoholic stimulants to goad them on to do a work they are unfitted to perform, and thus ultimately do harm instead of good. I quote again: "As alcohol stops waste, promotes constructive metamorphosis by increasing the appetite and the digestive power, and favors the deposition of fat, it is directly indicated in chronic wasting diseases, especially in phthisis. Clinical experience is in accord with physiological data; alcohol is an important remedy in the various forms of pulmonary phthisis." Again I say that Bartholow is in error. Clinical experience has failed to establish the value of alcohol in cases of phthisis for the reasons heretofore given. It retards the normal processes of waste and thereby induces a pathological fatty condition that life-insurance companies have learned to steer clear of. I am here reminded of an old epitaph that I have seen quoted, said to have been upon a tombstone in an old English burying-ground. The man was a tallow chandler by profession, but became so obese, probably from drinking ale, that he died, and this was the inscription on his head-stone:

"Here lies poor Marks, an honest fellow,
Who died by fat but lived by tallow."

To give you a variety, I will now quote from another eminent author, Ringer, on "Therapeutics." After commending the use of alcohol to restore "appetite and digestion," he says: "Strength, no doubt, is best supported by food"—to which I say Amen!—"yet," he continues, "the weakened stomach can digest but sparingly, but at the critical juncture alcohol spurs the flagging digestion and enables the patient to take and assimilate more food." I think it fitting to introduce a comparison here which, though it may appear crude, will illustrate my views upon the paragraph quoted. A teamster has a horse that by hard work and a long and continuous draught has become exhausted and unable to pull his load. The driver, whose name is Ringer, would rise upon his feet and, with ejaculations more forcible than rev-

erent, would, with threatening shouts and a vigorous application of the whip, so excite the nervous power of the poor animal that he would pull the load through though he might fall exhausted or dead when the struggle was over. That is the effect of alcohol; it lashes the nervous system and makes a show of strength, but it is only a *show*, that is followed *always* by a corresponding depression. How would driver Richardson manage that beast had he been in charge? Like a man of sagacity, he would spare the horse, if not from humane impulses; he would have a better way. The horse would be unhitched from the load, his harness removed, his limbs bathed, his whole system refreshed by a period of rest and a bountiful supply of nutritious food and water. Then, after a brief period, he would resume his load and take it easily to the desired point and be ready for further duties as usual the next day. Man is an animal that requires rest, pure water, and good food in health, and the conditions do not change when he is sick; and he who in his wisdom believes that he can improve upon the elements needed for man's sustenance in his extremity by substituting alcohol for water or milk and drugs for food is wise only in his own conceit, and has yet to learn the alphabet of physiological science.

But Ringer says some things that I heartily indorse, for example: "After a variable time the prolonged indulgence in alcoholic drinks seriously damages the stomach by producing chronic catarrh." While advocating its use in many conditions of the system and as a cardiac tonic, he is willing to state that "great as are the beneficial effects of alcohol in disease, yet it may do harm as well as good; . . . that, while alcohol may benefit *one* part of the system, it may injure *another*, doing good in one respect, yet on the whole inflicting more harm." Again he says: "In my judgment, there can be no doubt that alcohol is not required in all febrile diseases; on the contrary, many cases are best treated without it; and in no instance should it be given unless special indications arise." That certainly is very conservative advice. Again he writes: "A large dose at one time largely stimulates the heart; then, as the alcohol is decomposed or eliminated, the heart is left unsustained, when great weakness may set in; whereas, the frequent administration of small quantities keeps the heart more uniformly supported." I would ask, Is not the same kind of result produced no matter what the size of the dose? The heart is left weaker in consequence of its unnatural and stimulated activity. To *me* this appears good logic. I am sorry that Ringer was led to write what I am now about to quote; how old toppers must relish such a declaration! "The good old-fashioned remedy—rum or brandy and milk taken before breakfast—is useful in phthisis and exhausting diseases. A little rum and milk an hour before rising is a good prop to town-living women, to whom dressing is a great fatigue, who, without appetite for breakfast, suffer from morning languor and exhaustion, often lasting till midday; and to convalescents from acute diseases." These same persons the good doctor, to be consistent, would have take a little before dinner and tea to help the digestion, and again more at bed-time as a "night-cap" to induce sleep, and, if his practice was exten-

sive, he would furnish business for a wholesale liquor-store by his generous prescriptions for the various kinds of spirituous and malt liquors.

We now turn to Bidwell's "Materia Medica." He says, in brief and concise language, that "alcohol in the form of vinous and spirituous liquors *is employed*" (the Italics are mine; you will notice that he fails to commend, but simply states the facts, which we can not complain of or criticise) "to rouse and support the system in debility, asphyxia, syncope, the latter stages of acute attacks, typhoid and typhus fever, asthenic and malignant diseases, exhausting hæmorrhages and suppuration, gangrene, to counteract the effects of bites of venomous reptiles, in *mania a potu*, and in poisoning from digitalis, tobacco, and other narcotics; also as a stomachic in colic, flatulence, indigestion, nausea, etc." Had Bidwell stopped here we would have had no controversy with him, but, alas! he closes by this wholesale commendation, as follows: "The early administration of the preparations containing alcohol furnishes our best means of counteracting the depressing action of disease in general."

I pass to our next author, only remarking that the preceding is a statement entirely unsustained by experience. In the "Annual of the Universal Medical Sciences" for 1888 I find this sentence: "As to the employment of alcohol at all even in disease, the majority of writers seem to believe that it may be a most useful agent." I commend the compilers for their candor in making such a statement, though they rank themselves with the majority, for it reveals the fact (nevertheless, well known for several years) that there is a minority, respectable in numbers and character, that are steadily and conscientiously and scientifically at work to undermine the position that alcohol still holds in the list of remedies for the treatment of disease. I contend that its use as medicine in disease generally is as unwise and delusive as its use as a beverage in health. I am encouraged in this work to know that, from being the universal and infallible remedy it was once assumed to be, and fitted to meet all of the ills to which our poor humanity is heir, it has fallen into disrepute, and there are many sound practitioners of medicine who rarely or never use it.

I now turn to the "National Dispensary." Hear what that announces: "The use of alcohol in every age and by every nation in the world demonstrates that it satisfies a natural instinct, that it literally refreshes the system exhausted by physical or mental labor, and that it not only quickens the appetite for food and aids in its digestion, but that it spares the digestive organs by limiting the amount of solid food which would otherwise be required. But in accomplishing this salutary end it does not act as a mere condiment. It is also food—in this sense at least, that it offers itself in the blood as a substitute for the tissues which would otherwise be destroyed." The writer quotes from Moleschott, who says: "Alcohol is the savings-bank of the tissues. He who eats little and drinks alcohol in moderation retains as much in his blood and tissues as he who eats more and drinks no alcohol." I wonder he don't go further and state that he might also save expenditure for clothing and coal, for he could fire up with alcohol and keep himself

warm and save his coal-dealer's and tailor's bills. I remember hearing when I was a boy that "rum was a drunkard's lodging, meat, and drink"; it filled all the requirements of his system; but I was not prepared to read in this day and age from a book that is published and received as authority that man had a *natural* instinct for whisky, and that it was "the savings-bank of his tissues." I know a barrel of alcohol will keep a dead man if he is plunged into it and the barrel sealed up, but a *live* man could not long be preserved in it, even if he took to it as naturally as a duck does to water; and if alcohol is his savings-bank, I doubt if he ever has any deposits in any other bank. But I must not descend to the humorous. I had made copious selections from this "Dispensary," but will forbear to add more save this: "In the form of wine or distilled spirits, alcohol is the universal and familiar remedy for debility of every kind."

I now turn from this undue laudation of alcohol to the more conservative "United States Dispensary": "Alcohol is a very powerful diffusible stimulant. . . . In a dilute state it excites the system, renders the pulse full, and gives additional energy to the muscles and temporary exaltation to the mental faculties. It is found to lessen the amount of the excretions, from which fact some physiologists have inferred that it diminishes the disintegration of the tissues. . . . In some cases of acute disease, characterized by excessive debility, alcohol is a valuable remedy. In chronic diseases physicians should be cautious in prescribing liquids containing it for fear of begetting intemperate habits. . . . As an article of daily use, alcoholic liquors produce the most deplorable consequences. Besides the moral degradation, their habitual use gives rise to dyspepsia, hypochondriasis, visceral obstructions, dropsy, paralysis, and not infrequently mania."

These conclude my quotations from our standard textbooks in medicine. I now desire to quote from the eminent Dr. Richardson, who, in an address delivered to physicians perhaps fifteen years ago, used these words:

"We offer no reflection on the past, for we admit that in the past there was a common error pervading medicine in relation to the physiological action of alcohol, a common blindness as to the pathological evils springing from it, and a common misunderstanding or ignorance as to the extent of the evils. We remember how, in our pathological studies, our masters indifferently noticed the lesions admittedly produced by alcohol as they were observed in the dead, while they devoted their energies to define with the utmost nicety the lesions which immediately caused death. I recall one of those devoted teachers, whose memory I shall ever cherish, who, at nearly every research in the dead-house, would end the most careful description of the conditions that were the actual cause of the fatal disease with, 'Gentlemen, there are the usually known other lesions with which I need not trouble you, because they come under one head—whisky.' We admit all these past mistakes; we know how blind, not we alone, but all the world has been, and we come at present purely to review the past with the intention of improving the future."

The words of Dr. Richardson express my sentiments, and have ever since they were uttered by him or before I had the privilege of reading them. I feel, as I stated

at our last meeting, that the time has arrived when we should carefully review our practice in the use of alcohol. When I began the practice of medicine, thirty-two years ago, I used whisky by the gallon in my treatment of typhoid fever and other exhausting diseases, because I was taught thus to do, not only by our authors, but by the medical teachers of those times. But I was too much of a Yankee to blindly follow ever in a beaten path, and, using my own eyes of observation, I gradually arrived at positive convictions that the value ascribed to alcohol in the treatment of such cases was a delusion, and cautiously I gradually withdrew the use of stimulants, until at last I found myself successfully managing typhoid cases without the use of a drop of stimulants, and my patients recovered more promptly, I believe, as the result of dispensing with alcohol.

Dr. Richardson goes on to say as follows: "Fifteen or, at the most, twenty years ago (that would be thirty or thirty-five years from this time) the true physiological action of alcohol was a speculative discussion unsupported by any reliable experiment, and therefore of the most contradictory character. Now there is so much evidence of its mode of action that dispute gives way to accepted facts. That the ultimate action of alcohol in the animal temperature is to reduce the temperature; that alcohol relaxes organic muscular fiber; that alcohol produces four destructive physiological states of the body; that alcohol reduces oxidation; that alcohol interferes with natural dialysis; that alcohol induces, even in small quantities, a series of morbid changes and diseases which were not formerly attributed to it; that alcohol prepares the body for destruction by external shocks and depressions which are thus made more fatal; that alcohol belongs to the same class of chemical substances as chloroform, ether, and the anæsthetic family—all this is now on the accepted record, with the final admission, when we are speaking and thinking seriously, that man, like his lower earth-mates and like his own children, can in health live and work and play as well—not to put a fine point on it—without a trace of alcohol as he can with it."

I am confident that were Dr. Richardson speaking today upon this topic he would put a finer point upon it; for the steady nerve of the unerring marksman, Dr. Carver, has no trace of alcohol to influence it, and no one can live or work or play with the full fruition of life's possibilities if alcohol has a place in his system, for it is a perturbing agent that disturbs the equilibrium of the vital forces and deranges the normal action of man's elaborate mechanism.

Dr. N. S. Davis, of Chicago, has said: "Step by step the progress of science has nullified every theory on which the physician administers alcohol. Every position taken has been disproved until it is narrowed down to this: acute diseases where it is supposed there is danger from extreme weakness." After a further discussion of the subject Dr. Davis adds: "Hence I assume that alcohol neither strengthens nor nourishes nor sustains the heart's action, but diminishes it."

The limits within which I desire to confine my paper will not allow of more extensive quotations, and I will only add a few brief ones from other medical gentlemen whose views accord with my own observation and experience. Dr. R.

Green stated several years ago before the Medical Society of Boston: "Alcohol is neither food nor medicine. It can not add one molecule to the plasm out of which our bodies are daily built up. On the contrary, it exerts upon the whole animal economy a most deleterious influence. It does not supply but diminishes vital force. It weakens the nerves, deadens the sensibilities, lessens the power of the system to resist disease or to recover from its effects. Alcohol can not sustain vital force. It weakens the power of digestion and assimilation and can not be long continued without disastrous effects. There can be no excess in the animal economy without a corresponding loss. The momentary exaltation of the functions of either body or mind produced by alcoholic stimulants is always followed by an increased degree of depression. Alcohol may spur a weary brain or nerve a feeble arm to undue exertion for a time, but its work is *destructive*, not *constructive*; such stimulation means destruction, not added force. It is not stimulus but rest that is required for exhaustion from excessive mental labor. It is a whip, a cruel spur, quickening speed and consuming vitality." "As a result," he adds, "of thirty years of professional experience and practical observation, I feel assured that alcoholic stimulants are not required as medicines, and I believe that many if not a majority of physicians to-day of education and experience are satisfied that alcoholic stimulants as medicines are worse than useless, and physicians generally have only to overcome the prevailing fashion of to-day to find a more excellent way, when they will look back with wonder and surprise that they as individuals, and as members of any honored profession, should have been so far compromised." Dr. Bernard O'Conner testified before the British Medical Association: "During fourteen years of practice I never used alcohol for any patient, and my experience at the Consumption Hospital, to which I have been attached for some years, has been that consumptive patients progress very much more favorably with the absence of any alcoholic liquid than they do when alcohol is administered." I make my last quotation from Dr. N. S. Davis: "I speak the more positively because for thirty years I have faithfully tested the correctness of the sentiments given in relation to the therapeutic effects of alcohol in an ample clinical experience both in hospital and private practice. I have found no case of disease—no emergency arising from accident—that I could not treat more successfully without any form of fermented or distilled liquors. The preparations of ammonia and camphor are far more speedy and efficient remedies for immediately arousing the sensibility, while in caffeine, digitaline, convallaria, etc., I have found the proper cardiac tonics for restoring permanent steadiness and force to the circulation."

Gentlemen, I know and am proud of the fact that our noble profession is a conservative one. We are slow to abandon old remedies and theories for new ones, yet our Creator has endowed us with intelligences to guide us through the great responsibilities that we have to bear; and is it not true wisdom for us to follow the teachings of that great apostle, Paul, who said, "Prove all things; hold fast that which is good," by which he implies that we are to cast overboard those agents that are found wanting? The wisest

man of ancient times said: "Wine is a mocker, strong drink is raging, and whosoever is deceived thereby is not wise." It has deluded the world from the time of Noah until now. Let us, my professional brethren, cast off this great delusion and relegate alcohol to the family of anæsthetics, of which it is the least worthy member, and then we shall rarely or never prescribe or make use of it. The limits of this paper have not allowed an elaborate discussion of the subject, but I trust that I have presented sufficient to answer the requirements of your complimentary resolution and to arouse my professional brethren to renewed investigation on this line, that each of us may be prepared to give a reason for the faith we profess and the practice we follow.

A CASE OF NUTMEG POISONING.

By AMOS SAWYER, M. D.,
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On August 14, 1889, I was called to see a boy aged three. I found my little patient with a normal temperature and respiration; pulse regular, but just a little slow; all the muscles completely relaxed. An attempt to arouse him failed, his head falling in whichever way the body inclined. An examination of the pupils revealed complete dilatation. I felt certain that this condition was the effect of something the child had eaten, and, upon inquiry, was informed that he had, unknown to his mother, appropriated from her spice-box five large nutmegs, which he informed his little sister was his tobacco, and which by noon he had managed to consume, presumably spitting out the bulk of the spice. About 2 p. m. he complained of feeling dizzy and soon fell asleep, and they had been unable to arouse him. He had had one movement from the bowels, and had urinated twice while in this condition. There had been no delirium. He recovered consciousness as if awakening from a natural slumber, but with the greatest dislike for nutmegs, after having slept thirty consecutive hours.

Query, Why would this not be a valuable remedy, where a relaxed sleep was indicated, as an antispasmodic narcotic?

Treatment of Pneumonia by Application of Ice.—"Dr. Fieandt, writing in 'Duodecim,' a Finnish medical journal, states that he has now treated no less than 106 cases of pneumonia with ice, and with the best results. Though ten of the cases were of double pneumonia, only three out of the whole number succumbed, notwithstanding that the epidemic was by no means a slight one. The method adopted was to apply over the affected lung an India-rubber bag containing ice continuously for from twelve to twenty-four hours after the crisis. In addition to the local treatment the patients were given such medicines as are usually employed—that is to say, opium, ipecacuanha, digitalis, brandy, etc. The method has, we may remark, received of late some attention in this country."—*Lancet*.

Pathology of Extensive Burns.—"Oscar Silbermann, of Breslau, finds that in extensive burns the red corpuscles alter their form, and are able to exert less than their normal resistance to heat, drying, compression, and staining. In consequence of these changes, thrombosis and stasis in different organs are very frequent, especially in the lungs, kidneys, stomach, bowels, spleen, liver, skin, and brain, and most of all in the smaller branches of the pulmonary artery. The stasis in the lungs produces a very considerable impediment to the emptying of the right ventricle, with enormous venous congestion and dangerous arterial anæmia. This again leads to apoplexies and parenchymatous alterations in the above-mentioned organs, also to dyspnœa, cyanosis, coma, a small pulse, angina pectoris, eclampsia, anuria, and to a diminution of the surface temperature."—*Lancet*.

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GLANDULAR FEVER.

UNDER this title, in a recent number of the "Centralblatt für klinische Medicin," Dr. E. Pfeiffer describes an acute febrile condition mainly characterized by a swollen state of the lymphatic glands—an affection of frequent occurrence. According to his observations, the temperature rises to about 103° F., the tongue is slightly coated, the tonsils are a little reddened, and there is chilliness with fever, pain in the limbs, great uneasiness, loss of appetite, and vomiting. All the internal organs appear normal, but the lymphatic glands of the sterno-cleido-mastoid and occipital regions are swollen and painful. In moderate cases the fever ceases on the second day, and the glandular swelling subsides gradually. The affection may, however, be prolonged by recrudescences, the implication of the sterno-cleido-mastoid glands passing from one side of the neck to the other, and the lymphatic glands of the whole body may become involved. In such cases the throat symptoms are more pronounced, with slight cough, dysphagia, and hepatic and splenic pain on pressure on the third or fourth day. Another form of glandular fever is that which accompanies swelling of the intestinal glands; the liver and spleen are both tender, and there is diarrhoea with moderate fever, loss of flesh, slight albuminuria, and ascites.

Pfeiffer thinks that the course of the disease and its occurrence in localized epidemics, confined to a house or a family, show it to be infectious. O. Heubner is represented as having made similar observations, except that he has not noticed the implication of the liver and spleen or the occurrence of the disease in the epidemic form. Pfeiffer asks whether the affection is idiopathic, symptomatic, or a mere aggregation of symptoms of various morbid processes. Heubner has always taken the glandular condition as proceeding from infection of a neighboring mucous membrane, and this view is more in harmony than Pfeiffer's with what has previously been held, although the tendency to make glandular swelling an idiopathic disease has been so marked that in the first half of the century Velpeau, among others, protested against it. "Swollen and inflamed," said Velpeau, "the glands may remain for a long time the only sign of disease after the part originally diseased has returned to its normal condition; if there have been no appreciable changes, no signs of lymphangitis, in the course of the intermediate vessels, the patients and even their doctors readily overlook the cause of the adenitis and content themselves with studying the effect."

Sometimes the effect is disproportionately severe, often probably on account of the patient's reduced powers of resistance. Such was the case in a family to which the present

writer was once called. Two of the children were affected in a manner absolutely the same as that described by Pfeiffer. The swelling of the sterno-cleido-mastoid glands was very great, especially on the right side. The tonsils were so slightly reddened that attention was at once called to the disproportion between cause and effect. On inquiry, it was found that the mother, owing to dread of overfeeding her children, had so systematically underfed them that it required but a slight cold to make them very sick. Cod-liver oil and iodide of iron gradually got the upper hand of what might naturally be considered a cultivated weakness—a weakness common enough in poorly nourished children, whether from inherited tendencies or from improper feeding.

In his cases of the second class of glandular fever—those in which the intestinal glands were involved—Pfeiffer used calomel, cold compresses, a strengthening diet, quinine, wine, and iron, and it took at least three months for the patients to be completely restored to health.

AN UNJUST DISCRIMINATION.

MANY of our readers may not be aware that the law forbids the appointment of a physician to the presidency of the City Health Board. The fact has been severely commented upon by the profession, not with the prospect of the candidacy of any individual, but on account of the implied insult flung upon the profession at large. It seems to us preposterous that a board which should be composed of those versed in sanitary matters should be crippled with the condition that its head must not be a physician. The text of the law, however, makes it a mandatory proviso, even to the verge of ostracism. Can it be possible, we ask, that the pains taken to acquire the essential requisites of such an office should be a disqualification? If, indeed, the prospective incumbent were a recluse without the ordinary intelligence of the ordinary business man, unaccustomed to responsibilities, devoid of principle, or lacking in executive ability, there might be some reason in such special legislative discrimination. But, in the majority of instances, the physician has figured very largely and very acceptably in public affairs, even out of his ordinary sphere. Under the Dutch rule and during the colonial period he was a valuable counselor, and helped in no mean degree to shape the destinies of the metropolis. Toner, of Washington, in his "Medical Men of the Revolution," has also offered a tribute in favor of his patriotism, loyalty, self-sacrifice, and integrity. And yet the State of New York, carelessly we hope, has entered upon its statute-book this slur against an honorable profession, which in Europe claims the respect of potentates of almost every degree, particularly in affairs that concern the physical welfare of the people. Surely with a counsel of its own, or a corporation counsel, whose duty it is to advise regarding the limits of power, and with the distribution of funds checked by ample safeguards, there can be no danger in allowing the meager privilege of electing a physician to the presidency of the Health Board if he is qualified. The doctrine of this republic is supposed to be the largest liberty, and yet the member of our guild must necessarily forswear

his allegiance, forget his knowledge, and go into an all-around training, if his ambition happens to be in the direction of the only office in the State placed beyond his reach by self-seeking politicians. We have no candidate for the position, or, if we had, we should not depart from our policy of urging no one's advancement in political matters; we merely wish to rebuke what can be construed into nothing else but an insult or want of confidence. Let the office go, but remove the disqualification.

MINOR PARAGRAPHS.

THE STATE EXAMINATION OF MEDICAL STUDENTS.

THE law, passed last winter, requiring students having no baccalaureate degree to be examined before entering upon medical study, is being put in train for enforcement by the Regents of the University. A circular, dated August 20th, has been sent to the colleges and to individuals giving information respecting the methods of these examinations. The secretary, Professor Melvil Dewey, may be addressed at Albany for copies of the circular. Students who had entered upon a three-years' course prior to June 13, 1889, are not affected by the new law. The earliest date for which an examination has been set down is September 30th, at Buffalo. Hence, we judge, a certain proportion of this year's entries at the colleges will be in the plight of a legal oversight, unless there happens to be some provision that is not explicitly stated in the circular of the Regents. However, as it is not the object of the act to lay a hardship upon the students of the current term, there will probably be no difficulty in obtaining an amendment from the next Legislature by which their cases may be passed upon equitably. It is not generally known that the Regents' certificate is required to be filed with the dean or secretary of the medical school "prior to entering upon the prescribed three-years' course of study of medicine," and without this preliminary filing it is forbidden to the schools to grant the degree of doctor of medicine. The act does not apply to persons who "have already entered upon" the said course of study. The word "already" must be construed to refer to the date of the approval of the act by the Governor, on June 13, 1889.

THE AMERICAN PUBLIC HEALTH ASSOCIATION.

ELSEWHERE in this issue we publish the substance of certain announcements indicating that the forthcoming meeting, to be held in Brooklyn, promises to be altogether the most profitable one that the association has ever held. Far too seldom is the Brooklyn profession given an opportunity to show what it can do in connection with the meetings of medical and quasi-medical bodies of more than a local character. The pains that have been taken by the local committee in this instance ought not only to insure the success of the meeting, but also to dispel the illusion that Brooklyn has no title to as much individuality in such matters as is freely accorded to cities of a far smaller population.

THE CARBOLIC-ACID TREATMENT OF HÆMORRHOIDS.

DR. ANDREWS, of Chicago, was one of the first to study the subject of the carbolic-acid treatment of hæmorrhoids, and he has been reverting to it from time to time during the past ten years. According to the "Indianapolis Medical Journal," he states that there have been thirteen deaths following the operation of injecting the acid into piles, out of three thousand cases. This is a mortality far greater than that attendant upon the use

of chloroform as an anæsthetic. The estimated mortality, in the late civil war, following chloroform anæsthesia was about one in three thousand administrations, often undertaken under circumstances of embarrassment and risk. But the chloroform was of the purest that could be found and was scrutinized with care before being accepted in the medical supplies. On the other hand, in regard to the purity of the carbolic acid used by the operators on hæmorrhoids, little if any attention is given to it, it is alleged; generally the first that is offered is accepted without question.

THE CONGRESS OF AMERICAN PHYSICIANS AND SURGEONS.

DR. C. H. MASTIN, of Mobile, who may be said to be the father of this organization, set a wholesome example in the ground he took, at a recent meeting of the Executive Committee, for declining the nomination to the presidency. He is reported as having said that no member of the Executive Committee ought ever to be elected to the presidency. Thereupon Dr. S. Weir Mitchell, of Philadelphia, was chosen president, and Dr. William H. Carmalt, of New Haven, secretary. The next meeting is to be held in Washington, in September, 1891.

THE ACADEMY OF MEDICINE'S NEW BUILDING.

IT is announced that the corner-stone of the new building, in West Forty-third Street, will be laid by the president on Wednesday, October 2d. The exercises, which are to begin at 4 o'clock in the afternoon, will include an invocation by the Right Rev. Bishop Potter, an address by Dr. A. Jacobi, and remarks by the Hon. Grover Cleveland. We trust that there will be a full attendance of fellows of the Academy, as well as of members of the profession at large, to add dignity to the occasion and to promote general interest in the Academy's efforts to raise the sum still wanted to complete the amount of money required for the new building.

THE OBSTETRIC USES OF CREOLIN.

THE "Medical Press" for September 4th refers to creolin as about the best disinfectant in midwifery. It is not an irritant to the vaginal mucous membrane, like carbolic-acid and sublimate solutions. It does not irritate wounds or abrasions, and will not retard healing. Under the use of creolin mucous membranes become softer and smoother than before its use. Its odor is not disagreeable, especially when brought into comparison with carbolic acid or iodoform. If by accident it is taken internally it is said to be bland and harmless. It does not corrode instruments, but, mixed with water, it forms a non-translucent emulsion, so that instruments may be lost sight of, if not sought for with care. The cost of creolin is not high, being less than that of carbolic acid. The writer recommends Pearson's creolin as being less variable than some others. The uncertainty of its composition has been the chief objectionable feature of creolin.

ITEMS, ETC.

The Shelby County (Indiana) Medical Society will hold its next monthly meeting in Shelbyville, on Monday, October 14th. The programme includes the following titles: "The Management of Normal Labor, with Particular Reference to the Employment of Antiseptics in Midwifery Practice," by Dr. J. W. Green, of Shelbyville; "The Use of Ergot in Labor," by Dr. S. L. Strickler, of Boggstown; "Practical Obstetrics," by

Dr. John Moffett, of Rushville; "Delivery of the Placenta, with Report of Cases of Adherent Placentæ," by Dr. M. R. Gilmore, of Boggstown; "The Management of Shoulder Presentations," by Dr. Edward F. Wells, of Shelbyville; "Post partum Hæmorrhage, with Report of Cases," by Dr. J. W. Bowlby, of Marion; "Puerperal Eclampsia, with Report of Cases," by Dr. T. R. Rubush, of London; "Management of the Perinæum, with Report of a Case of Rupture," by Dr. I. W. Trees, of Smithland.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending September 24, 1889:

DISEASES.	Week ending Sept. 17.		Week ending Sept. 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	55	14	63	16
Scarlet fever.....	22	2	24	4
Cerebro-spinal meningitis....	1	0	0	0
Measles.....	11	0	9	0
Diphtheria.....	61	16	55	15

The Military Service Institution.—The announcement of the meeting for Friday, the 27th inst., at Governor's Island, New York Harbor, gave the title "Personal Identity as a Means of Recognizing Deserters" as that of a paper to be read by Surgeon Charles R. Greenleaf, of the army.

The City Health Department.—Dr. F. Irving Disbrow has resigned his position under the Department, on account of failing health, and resumed private practice.

Change of Address.—Dr. George P. Thomas, formerly of Staten Island and late superintendent of the Alameda County Hospital, California, to lock box No. 253, San Leandro, Cal.

The late Dr. Addinell Hewson, of Philadelphia, who died on the 11th inst., aged sixty-five years, was of the fourth generation, in direct line, in medicine. He received his preliminary education in the University of Pennsylvania, and was graduated in medicine at the Jefferson Medical College in 1850. He held several hospital appointments in Philadelphia, and was a meritorious writer on surgical subjects.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 15 to September 21, 1889:*

SMITH, ANDREW K., Colonel and Surgeon. By direction of the Acting Secretary of War, leave of absence for fourteen days is granted on surgeon's certificate of disability. Par. 1, S. O. 214, A. G. O., September 14, 1889.

STERNBERG, GEORGE M., Major and Surgeon, having completed the duties assigned him in War Department order dated February 4, S. O. 30, February 5, A. G. O., is, by direction of the Acting Secretary of War, reassigned to duty as attending surgeon and examiner of recruits at Baltimore, Md. Par. 12, S. O. 218, A. G. O., September 19, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending September 21, 1889:*

BEARDSLEY, G. S., Medical Inspector. Granted six months' leave, with permission to go abroad.

RUTH, M. L., Surgeon. Order granting furlough revoked, and placed on waiting orders.

HUDSON, ADRIAN, Medical Director, Woods, G. W., Medical Inspector, and DICKINSON, DWIGHT, Surgeon, will continue as president and members of an Examining Board for examina-

tion of applicants for the position of assistant surgeon in the navy at San Francisco, Cal., until June 30, 1890.

Society Meetings for the Coming Week:

TUESDAY, *October 1st:* New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Broome (annual), Columbia (annual—Hudson), Orange (semi-annual—Goshen), and Schoharie (semi-annual), N. Y.; Medical Association of Northern New York (annual—Malone); Hudson (Jersey City) and Union, N. J. (quarterly), County Medical Societies; Chittenden, Vt., County Medical Society; Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *October 2d:* Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Philadelphia County Medical Society; Bridgeport, Conn., Medical Association.

THURSDAY, *October 3d:* New York Academy of Medicine; Society of Physicians of the Village of Canandaigua; Washington, Vt., County Medical Society; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *October 4th:* Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *October 5th:* Clinical Society of the New York Post graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Proceedings of Societies.

AMERICAN GYNÆCOLOGICAL SOCIETY.

Fourteenth Annual Meeting, held in Boston, September 17, 18, and 19, 1889.

The President, Dr. H. P. C. WILSON, of Baltimore, in the Chair.

An address of welcome was given by Dr. J. P. REYNOLDS, of Boston.

The Use and Abuse of Antiseptic Injections in Obstetrical Practice was the title of a paper by Dr. H. J. GARRIGUES, of New York. If, he said, one was satisfied that puerperal fever in any given case was the result of infection, the use of antiseptic injections was indicated. Like all other useful measures, this had sometimes been carried to extremes. The other extreme was reached by those who discarded injections after labor altogether. Much mischief was undoubtedly done by injections when they were not needed—as, for example, when they were used too frequently, of too great strength, etc. At the Maternity Hospital, at Blackwell's Island, from 1874 to 1885, the mortality had been 4.17 per cent. During the period from 1884 to 1888, in which the author's method of treatment had been followed at the same institution, there had been but two fatal cases, or a mortality of a fraction of one per cent. The morbidity also had been small. Vaginal injections before delivery were believed by the author to be useful, though they were objected to by many writers on the ground that they were

dangerous, that the lubricating mucus of the vagina was removed, etc. In answer to the objections that the bacteria on the surface of the vaginal mucous membrane were harmless, it must be remembered that they would not be harmless if they penetrated the subjacent tissues. They would also constitute an element of danger when carried from the vagina into the womb. If vaginal injections were used prior to labor, the vagina would be dilated and the micro-organisms removed or destroyed. It must not be forgotten, too, that during labor a new supply of mucus was secreted to replace that which might have been washed away. In cases in which, for any cause, frequent examinations were required during labor, vaginal injections should be repeated as often as every three hours, and, if instruments were required or the hand was introduced into the uterus, both uterine and vaginal injections would be required. Such injections were better than intra-uterine applications of antiseptic material with a swab, which was recommended by some. Infection would not occur if the labor had been antiseptic. Subsequent to labor, if the lochial discharge became fetid, another indication for intra-uterine irrigation would exist, likewise if *débris* were left in the uterus, if there had been sloughing as the result of prolonged labor, if the fœtus had been macerated, etc. Puerperal peritonitis should be treated with such injections as soon as it was recognized, and such treatment might also be required after abortion. As to the proper material for injections, solutions of bichloride of mercury might be used, but they should be used with great caution. Since 1884 reports of twenty-two fatal cases from the use of such injections had been reported, though it must be admitted that four of this number should not be considered, and in others the solution had been too strong, or had been too frequently used, or had been improper in some other way. The strength of the mercurial solution should not exceed 1 to 5,000, and its use should immediately be withheld if toxic symptoms were apparent. Some of the contra-indications to its use were anæmia, kidney disease, and diarrhœa. Other solutions had also been extensively used for this purpose, especially that of carbolic acid. The objection to this was that its odor was offensive to many, it benumbed the hands, and might produce severe results to the patient's entire nervous system. Thymol, salicylic acid, chloride of zinc, hydronaphthol, and various other substances had advocates. The author had made extensive trial of creolin, and had been well pleased with the results. In two-per-cent. solutions it was perhaps as useful and as unobjectionable as anything that had been tried. Objections to its use were that its agreeable odor might mask offensive odors which would lead to the discovery of important conditions; also that, as it formed an opaque emulsion and not a transparent fluid, it might conceal particles the presence of which it would be desirable to ascertain. It had also valuable lubricating and hæmostatic properties. If vaginal douches alone were to be given, the author preferred to use a glass vaginal tube six inches long. If the solution was to be carried into the uterus, a single tube was preferable to a double one, and it should be carefully guided into the uterus with the fingers, great pains being necessary to avoid forcing any fluid or uterine *débris* into the Fallopian tubes. The patient, while receiving the injection, should be on the back, on a bed-pan or a rubber cloth so folded that it would catch and carry away all fluid as it returned from the vagina. The tube must not be forced into the uterus, but must be withdrawn and re-introduced if obstruction was encountered. Failure to observe this precaution had resulted in perforation of the uterus and injection of the bichloride solution into the abdominal cavity. The temperature of the uterine douche should not exceed 110° to 115° F., and the quantity should not be greater than two or three pints. For vaginal douches there would be

no objection to using from two to three quarts. The return fluid should be carefully examined for septic matter, the uterus should be compressed after the irrigation was completed, and no fluid should be allowed to remain in the vagina.

Dr. W. T. Lusk, of New York, agreed entirely to the fundamental principle of the paper, which he understood to mean the advocacy of prophylactic vaginal injections. He also believed that all cases of septic puerperal fever which called for irrigation were the result of insufficient precautions on the part of the attending accoucheur. Of course this did not apply to diseases in which the virus was not introduced through the vagina. The best results from uterine injections were obtainable in cases in which there was infection from putrid matter, decayed blood-clot, etc. In septicæmia, in which round bacteria constituted the infecting agent, injections did no good, and probably did harm if used after the microbes had passed into the lymphatic circulation. In general, he believed that one thorough uterine irrigation, followed by the use of an intra-uterine iodoform pencil, was all that would be serviceable. Injections repeated as often as once in three hours were improper and likely to be injurious. He did not believe that one could depend upon the odor from offensive discharges as a guide for the administration of uterine injections, as had been frequently asserted. In fact, the most offensive discharges might proceed from simple puerperal catarrhal endometritis. In New York practice, he believed, many cases of supposed puerperal fever were in reality cases of typhoid fever proceeding from defective sanitation. Especially was this true in tenement-house practice. The method of treating puerperal fever which was practiced by Doléris and his followers, which consisted in curetting the uterine mucous membrane and then irrigating, was to be recommended in some cases.

Dr. H. C. Coe, of New York, had followed the method prescribed by the reader of the paper with satisfactory results. He found it very difficult, however, to distinguish those cases which were suitable for irrigation from those in which it was contra-indicated, in view of the fact already referred to by Dr. Lusk that the infectious elements might have passed beyond the reach of the injection. He had obtained good results from the use of creolin, but had also observed that it sometimes masked the odor of the discharges. He believed that prophylaxis was all-important in the treatment of puerperal cases.

Dr. W. M. Polk, of New York, indorsed the principle advocated by the author, but, as to the details, his custom was somewhat different. He first washed the genitals externally and internally with potash soap and hot water, and then used an injection of bichloride of mercury, 1 to 5,000, or creolin. He had not yet decided which of the two solutions was preferable. He believed it a fact that suppuration in the uterine cavity should be treated in the same manner as suppuration in any other cavity. His habit was to place the patient on the left side, carefully swab out the vagina and uterus with cotton, give the injection, and then introduce iodoform gauze for drainage. There was usually no necessity of repeating the irrigation—certainly not within a day or two.

Dr. P. F. Munde, of New York, thought it had not been stated that a prime condition was to find the absolute cause of sepsis. This implied a careful examination of the uterus with the finger after the chill or high temperature had appeared and before irrigation had been practiced. If septic matter was discovered it should always be removed with the curette, this being followed by irrigation. Subsequently ergot might be administered, the ice-bag or cold-water coil applied, and an antiseptic pad placed at the vulva. He agreed to the statement that one should not depend upon the odor of discharges as a guide to irrigation, and even the finger could not

be relied upon in all cases—notably in those cases in which the infecting bacteria had passed into the circulation. A chill might follow irrigation, the temperature reaching from 104° to 105° F. This need not cause alarm. Intra-uterine injections after normal labor were entirely uncalled for. He agreed to the statement that the fault was that of the attending accoucheur if a puerperal woman became septic.

Dr. H. J. BOLDT, of New York, showed an intra-uterine catheter which was a modification of the Bozeman-Fritsch instrument. He admitted the difficulty of cleansing it, and stated that it should always be boiled immediately before being used.

Dr. A. P. DUDLEY, of New York, believed that there were cases of puerperal fever which were due to infection from pyosalpinx of one side, infection of the uterus not occurring until labor had been concluded.

Dr. HOWARD KELLY, of Philadelphia, believed that the vagina should always be washed out in cases in which there was any suspicion of infection. In tenement-house practice, in which the surroundings were very unhygienic, he had derived great benefit from the use of a device of his own by which means injections could be given and the fluid be carried off without wetting the clothes of the patient or the bedding.

Dr. E. C. GEHRUNG, of St. Louis, thought that septicæmia might be produced by the use of uterine injections, *débris* being propelled by the current farther into the uterus. Suction or aspiration was more successful in the treatment of puerperal cases than propulsion.

Dr. W. G. WYLIE, of New York, believed that in many cases of puerperal fever the source of the trouble was not in the uterus, but in the broad ligaments or other pelvic tissues. He had long since advocated intra-uterine irrigation if the disease was in the uterus, and believed that, if used at all, injections should be used frequently—as often as once an hour. If the disease was in the broad ligament, his plan was to make an opening in the vagina, remove the septic matter, and drain. In many cases general peritonitis would result, but even this might be cured by timely laparotomy.

Dr. GARRIGUES warned against depending solely upon temperature as an indication for uterine irrigation. The uterus should be carefully examined for septic matter; if any was found, it should be removed with the curette, and irrigation practiced. If these conditions did not exist, irrigation was not called for. He approved of the preliminary use of soap and water recommended by Dr. Polk, but saw no necessity for gauze or other means of drainage in the uterus, the natural conditions of the organ favoring drainage. A chill after irrigation was not usual, but, should it occur, the irrigation should not be repeated. Laparotomy would seldom be appropriate; indeed, the patients or their friends would seldom allow it. Frequent irrigations might not be harmful if properly given, but he thought that equally good results could be obtained by using powerful vaginal suppositories.

A Digest of Twenty Years' Experience in the Treatment of Cancer of the Uterus by the Galvano-cautery.—A paper with this title was read by Dr. JOHN BYRNE, of Brooklyn.

One reason, the author said, why a knowledge of the value of the galvano-cautery was diffused to so small a degree among gynæcologists consisted in the great popularity of the thermo-cautery, which, however, could not occupy the same field with the former. His first series of cases of cancer of the uterus treated with the galvano-cautery had been published in 1872. He had tried to demonstrate at that early day that this means of treatment was less dangerous than any other, and that it was the most useful for the treatment of uterine cancer. Even at that time he had stated that it was necessary in all cases to re-

move tissue quite beyond the apparent seat of the disease, if one would obtain permanent results. Prior to 1872 there had been few who had made use of the galvano-cautery, one great obstacle being the difficulty of obtaining a battery of the requisite power. He had finally succeeded in overcoming this difficulty, and the battery which he had devised had been in constant use in all his work during the past fifteen years. The Paquelin thermo-cautery was much inferior to the galvano-cautery in the treatment of uterine cancer, because of its great radiation of heat, and he believed that its value was greatly overestimated. Whatever instrument was used, it was essential that all the diseased tissues should be thoroughly burned. Chloride of zinc had been used for many years, and was an inferior substitute for the cautery when the latter was not attainable.

The author's patients numbered 367. Of these, 121 had been lost sight of within a year after the operation; his statistics were, therefore, necessarily incomplete. Of those cases which he had been able to follow up, in 59 the disease had been limited to the portio vaginalis, in 81 to the entire cervix, and in 8 to the corpus; in 219 the entire organ had been involved. In the first class, 36 had exemption from recurrence for from one to fifteen years, the average period being eight years and a half. In the second class, there were 35 in which the average period of exemption was five years and a half. In the third class, 4 had an average period of relief for two years. In the fourth class, 78 were exempt for nearly three years. Though the relief in many cases was only temporary, all palliative means in so terrible a disease should be considered useful. In using the cautery the greatest care and thoroughness were necessary, and the current should not be passed until the wire had been secured upon the tissues which were to be burned. Care must also be taken to avoid burning the healthy vaginal tissue at a distance from the disease.

Dr. A. REEVES JACKSON, of Chicago, eulogized the painstaking and laborious efforts of the reader of the paper, and considered its statements as forming a striking contrast to most of the recent contributions to the treatment of cancer, in which serious cutting operations upon the uterus or its adjacent organs were advocated. Such contributions showed results which were far inferior to those which had been published by Pawlik and the reader, by both of whom the galvano-cautery had been used. Those who performed hysterectomy admitted that the death-rate from that operation was high, but as an offset they maintained that those who recovered from the operation were likely to be free from recurrence of the disease. Reference to recent German statistics showed that such a statement was fallacious.

Dr. T. A. REAMY, of Cincinnati, thought the author of the paper too sanguine in regard to the possible results to be obtained by the use of the cautery. In his own series of fifty-seven cases of operations for cancer of the cervix, in which twenty-two patients had apparently recovered, he doubted whether the results would have been much better if the cautery had been used, as the reader of the paper had seemed to imply. The result in all cases must depend upon the stage of invasion of the cancer at the time of the operation, rather than upon the method or form of the operation. He believed that hysterectomy had a field, though it might be a narrow one, and did not agree with the two previous speakers that such operations should never be performed.

Dr. BYRNE thought it impossible to define the limits of cancer in any given case, and believed that after all tissue that could be reached by the knife or scissors had been removed the cautery would reach diseased cells which were otherwise inaccessible. He had avoided the use of the word *cure* in the relation of his cases, preferring to use the word *relief* as more

appropriate, for no one could say that an absolute cure was obtained in any case. Even in those cases in which relief had continued the longest the disease might reappear in the ovaries or elsewhere. With reference to hysterectomy, he was totally opposed to it, and was certain that the statistics were even much worse than had been reported.

Dr. H. C. COE, of New York, read a memorial of the late Dr. James B. Hunter.

The Nature and Limitation of Treatment for Uterine Fibroids was the title of a paper read by Dr. P. F. MUNDÉ, of New York. There were many cases of uterine tumor in which no treatment was required. Referring to the usual classification of uterine tumors, it was noticeable that those of the subperitoneal variety were seldom accompanied by hæmorrhage; those of the submucous and interstitial varieties frequently were. The treatment for the subperitoneal variety, in cases in which treatment of a surgical character was required, would consist in removal of the uterus with the tumor, or in removal of the ovaries alone. In the interstitial variety the tumor could often be removed without removing the uterus; in the submucous variety the tumor alone would require removal. If the tumor was not removed, ergot or electricity might be substituted, the object being to force the tumor as far as possible into the pelvis. The greatest difficulty was to be expected in attempting to remove sessile fibroids seated near the fundus through the undilated utero-vaginal canal. The German method, of performing laparotomy and removing the tumor through the opened uterus, was perhaps preferable in such cases. Hæmorrhage accompanying uterine tumors might be treated with the curette or by electro-puncture through the vagina. It was maintained for the latter, which was Apostoli's method, that it would cause the tumors to cease growing, but this cessation was not permanent. In the three cases in which the author had performed oophorectomy for the relief of uterine tumors the results had been satisfactory. In six cases in which subperitoneal tumors had been removed through the abdomen recovery had taken place in four; in all cases the pedicle had been treated by the extra-peritoneal method. Tumors which were seated near the os internum tended to dilate the os, and in many cases no treatment would be required. In some cases in which operation was indicated they could be enucleated and drawn out after the capsule had been split. Laparotomy should not be performed if a tumor was causing no serious trouble, and no operation was indicated in most cases in which the menopause was imminent.

The Nature and Treatment of Fibroid Tumors.—Dr. W. G. WYLIE, of New York, in a paper on this subject, said that he had observed that in tumors which were slow in growth uterine symptoms were equally absent, and that, if pain and general discomfort were present, the endometrium or the tubes and ovaries were usually involved. In women forty years of age and upward small tumors of the uterus were not usually significant, though they might delay the menopause. If there were pain and failing health about the time of the menopause, it was usually an indication that degeneration was taking place, and hysterectomy would probably be indicated. Fibroid tumors were like all organic matter, and had their periods of growth and decay. He could not speak with accuracy, but believed that the life of a tumor would usually be from two to eight years. Should it cease growing, and after a time begin again, its removal might be required. A tumor might be quite large and give rise to no symptoms; the patient might even be unconscious of its existence. Should complications occur, such as cystic degeneration or suppuration, an indication for removal would then be furnished. If only the lining membrane of the uterus was diseased, curetting might control hæmorrhage for a year or more, but in case it did not, the tubes and ovaries

should be removed. If this was done thoroughly, all bleeding would probably cease. He believed that it was possible to do hysterectomy with comparative safety. His own death-rate was now but ten per cent., and he thought it could be lowered. He had experimented with Apostoli's method of treating fibroids for two years, and believed that its value had been overestimated. If it did no harm, it would at least cause delay, and thus might remove a patient's only chance for relief by operation. With women of the child-bearing period strong currents of electricity were inadvisable. Electricity would doubtless stop bleeding from fungous growths of the uterus, but it might also cause damage, and was no safer than the curette. In fact, the use of the latter had been absolutely safe in his experience. His opinion as to the value of electricity was admitted to be provisional, as he considered his experience still insufficient.

Dr. REAMY approved of the conservative tone of both the papers which had been read, especially in view of certain radical views that had recently been enunciated in certain parts of our country. Cases were innumerable in which autopsies revealed the presence of uterine tumors the existence of which had never been suspected during life. Such a fact was fundamental in the consideration of any method of treatment. Martin had recently stated that in 205 cases in which uterine myomata had been removed by him, fatty and other degenerative changes were found in 70; hence spontaneous cure might occur. It was even possible in cases in which changes of an inflammatory character had taken place, as he had twice witnessed. The low vascularity of most of these growths also taught us that severe measures were not always necessary. Many might be cured by ergot without the aid of knife or electricity. The speaker was of the opinion that Apostoli had not been fairly dealt with in this discussion. He knew from personal experience that tumors were curable by Apostoli's method. Curetting had not been absolutely safe in his hands, and if, as was asserted, electricity caused stenosis of the uterine canal, it could not destroy the possibility of pregnancy more effectually than removal of the tubes and ovaries, which had been so freely advocated. In his experience oophorectomy would not always stop the hæmorrhage caused by uterine tumors. For the severest cases he conceded the propriety of hysterectomy.

Dr. G. J. ENGELMANN, of St. Louis, admitted that his results in the treatment of uterine fibroids by electricity had not come up to his expectations. The results were excellent in cases in which the uterus was surrounded by hard masses of exudate. The same was true in the treatment of both profuse and scanty menstruation. In most cases in which electricity had been used by him the patients had become more comfortable, and with poor working women that was of great consequence. No single method of treatment was applicable to all cases of uterine tumor. There was a field for ergot, for the knife, and for electricity.

Dr. J. R. CHADWICK, of Boston, was entirely opposed to Apostoli's method. He had followed Apostoli's directions carefully in twenty-four cases, and had seen improvement in but one. In that case the hæmorrhage was checked for three years. In none of them had the tumors been reduced in size. In two cases death had resulted, and two others had been nearly fatal. Apostoli alleged much for his method; he was therefore a fair object for the most searching criticism.

Dr. ELY VAN DE WARKER, of Syracuse, N. Y., believed that Apostoli's method had produced positive scientific results, and objected to such sweeping denunciation of it. Electricity might result in cystic degeneration in tumors or intensify such a condition if already existing. It might also be followed by high temperature, and these results might be caused by the intra-uterine use of electricity as well as by galvano-puncture. But

such results were exceptional. On the other hand, it would cause tumors to become movable and smaller, and would stop hemorrhage.

Dr. M. D. MANN, of Buffalo, N. Y., had used electricity with success in all cases in which tumors had been treated, but this statement did not apply to galvano-puncture.

Dr. MUNDÉ stated that he had seen three tumors disappear after galvano-puncture, but still believed that Apostoli's statements were extravagant.

Dr. WYLIE reiterated his opinions concerning the value of the curette and the extravagance of Apostoli's assertions.

(To be concluded.)

MEDICAL SOCIETY OF VIRGINIA.

Twentieth Annual Meeting, held in Roanoke, on Tuesday, Wednesday, and Thursday, September 3, 4, and 5, 1889.

The President, Dr. E. W. Row, of Orange, in the Chair.

(Concluded from page 329.)

Some Practical Points in the Treatment of Hip Disease with Special Reference to the Use of Thomas's Splint.—In a paper with this title, by Dr. JOHN RIDLON, of New York (present by invitation), the management of hip disease in a mechanical way was considered from the standpoint of the general practitioner. The difficulties in the way of the use of the various forms of traction splints were considered. The use of plaster of Paris was dwelt upon, and its advantages and disadvantages were pointed out. Traction in bed, after the manner of Howard Marsh, was described and commended for those cases where traction was indicated, and where there was no contra-indication to prolonged rest in bed. To one, however, who was satisfied to treat tubercular joint disease in any part of its course without traction, or who was so circumstanced, as the general practitioner was, that he must treat all walking patients without traction, and to one who believed that immobilization, and not traction, was chiefly indicated in the management of these cases, Thomas's splint would prove of great service, as it could be made by a blacksmith and a harness-maker at a cost of not more than \$2.50. Splints were exhibited, their construction was described, and their application was shown according to Mr. Thomas's latest methods. It was urged that the splint should not be considered as essentially a walking-splint, but that it should be applied to the patient while he was still in bed, and that he should be kept in the horizontal posture, though not necessarily in bed, till all involuntary muscular spasm subsided. Then he should be allowed to go about on crutches and a patten (on the sound limb). When it appeared that he was cured, the crutches and patten should be dispensed with and the splint shortened so as to reach only to the knee, and so continue for several months. The importance of not once removing the splint, to test the joint motion, was insisted upon as likely to prolong the disease and lead to ankylosis.

A Report on Advances in Ophthalmology, Otology, and Laryngology was read by Dr. JOSEPH A. WHITE, of Richmond.

Primary Iritis, its Diagnosis and Treatment, was the title of a paper by Dr. J. HERBERT CLAIBORNE, Jr., of New York (present by invitation). After an anatomical description of the iris and contiguous parts, he remarked that it was important to remember that, in a condition of health, the edge of the pupil rested on the anterior surface of the lens in moderate dilatation. The diagnosis was to be made by the signs rather than the symptoms of the disease. The chief signs were circumcorneal redness, steamy cornea, clouded aqueous, discolored iris, small pupil, irregular and puckered edges of the pupil, etc. Tenderness on pressure in the ciliary region was the symptom

indicating a high stage of ciliary congestion, but not necessarily of cyclitis. Treatment was comprised under the great "therapeutic trilogy"—local depletion, dilatation of the pupil, and systemic treatment. Local depletion was best obtained by that leech that took deepest hold, sucked the longest, and drew the most blood. Bleeding should be encouraged by hot applications to the bites. The position for the leeches was in the temporal fossa, in a horizontal line with the outer canthus of the eye, to drain the temporo-malar branches of the lacrymal arteries. He preferred to combine cocaine with mydriatics, on account of the greater mydriatic power of such a combination, and the analgesic effect of cocaine. He preferred duboisine combined with cocaine. With regard to systemic medication, he used blue ointment, salicylate of sodium, iodide of potassium, the iodide combined with bichloride or biniodide of mercury, antipyrine, Russian or Turkish baths, and quinine for its general tonic effect. He laid much stress on the value of salicylate of sodium, especially in rheumatic iritis. It was also of great value in the specific forms of the disease, as assisting the action of the other agents. There was no need of opium or morphine in iritis. If the pupil could be dilated, pain would cease; if it could not, antipyrine was a good substitute for morphine. Too much stress could not be laid on the importance of the early treatment of iritis with regard to preserving the sight. The responsibility of treatment rested on him who saw the case first.

Neurectomy for Facial Neuralgia.—Dr. E. M. MAGRUDER, of Charlottesville, read a paper reporting two cases. The first was that of a gentleman, aged seventy-one, who had had persistent neuralgia for fourteen years that no medicine cured, although he had consulted eminent specialists. Seven drops of fluid extract of gelsemium, every three hours, gave greater relief than any other medicine except morphine. But, all medicines failing, the patient was chloroformed, and, with strict antisepsis, an incision was begun just below the lower orbital margin, over the infra-orbital foramen, and carried straight downward, parallel with the nose, toward the lip, ending on a level with the lower border of the ala nasi—about an inch long. The fascia and fibers of the levator labii superioris were torn through with the handle of the scalpel, and the nerve was exposed at its exit where it divided into its branches. Each branch—the palpebral, the nasal, and the labial—spreading into a fan-shape as it neared its destination, was dissected out as far as it could be followed without mutilating the face too much. The main trunk was then seized with a forceps at the foramen, drawn out as far as possible without breaking it, and cut off close to the bone, after which the various branches were divided at their farthest point of dissection. The wound was closed with fine silk sutures. There was at first considerable paralysis of the side of the face, with loss of sensation, but these had now disappeared except from the right half of the upper lip, which was still without motion or sensation. There had been no recurrence of the neuralgia. The patient felt like a new man.

The second patient was a lady, aged fifty-eight, who had had facial neuralgia for ten years. At first it was confined to the left lower jaw, never passing the middle line of the chin, but afterward extended to the left external ear, the temple and the side of the head above and behind the ear, the left side of the tongue, and then the left side of the floor of the mouth. The diagnosis was that of neuralgia of the inferior dental nerve, with reflex and sympathetic phenomena exhibited by the auriculo-temporal, gustatory, and dmylo-hyoid nerves. As to treatment, teeth had been extracted, analgesics had been used, etc., and finally total neurectomy of the inferior dental nerve—including its branches—was done. In the operation, to avoid injury to the facial artery and Stenson's duct, the scalpel was inserted just in front of the posterior border of the ramus and

just below the parotid duct and lobe of the ear, and a curvilinear incision was made downward, half an inch in front of the inferior maxillary angle, then carried forward a little above the lower border of the ramus, and upward just behind and avoiding the facial artery, stopping short of the line of Stenson's duct above. The flap thus shaped was raised by shaving the masseter muscle from its attachment to the outer surface of the ramus, and the bone laid bare. With a half-inch trephine he cut out a button of bone from the center of the outer plate of the ramus, exposing the nerve in its bony canal. Seizing the proximal end of the nerve with a forceps, he made strong traction away from its origin; it was then cut off with scissors close to the bone as it entered the circular cavity made by the trephine. Then, the wound being stuffed with moist antiseptic cotton and the hæmorrhage stopped with pressure, a second incision was made, an inch long, horizontal in direction, over the mental foramen (below the root of the second bicuspid tooth), beneath the depressor anguli oris, disclosing the mental nerve and its branches beneath the last-named muscle. The nerve was grasped with a forceps and pulled upon, but broke off at its point of exit. The branches were then dissected out and cut off as far as possible from the foramen. Then, returning to the first wound over the ramus, and chiseling away the wall of the dental canal for an eighth of an inch from the circular cavity in the ramus, so as to expose this end of the nerve, which had been divided by the distal side of the trephine, he drew it out of the dental canal with the forceps, in its entire length from the ramus to the mental foramen. In all, three inches and three eighths of nerve structure were removed. The wounds were closed, the patient was perfectly relieved, and there had been no return of neuralgia since. The paralysis of the left side of the face disappeared in about two weeks.

The lesson to be learned was that in all operations for facial neuralgia, as much of the troublesome nerve and its branches as the anatomical formation of the parts would allow of, without rendering the procedure too grave, was to be removed.

A Report on Advances in Neurology and Psychology was read by Dr. LEWIS G. PEDIGO, of Roanoke.

A paper on "Railroad Injuries" was read by Dr. C. R. CULLEN, of Waldo, Florida (present by invitation).

A paper on "Diagnosis by Means of Urinary Analysis" was read by Mr. HUGH BLAIR, of Richmond, a delegate from the Virginia Pharmaceutical Association.

Dr. A. F. KERR, of Williamsville, reported a case of external glanders in man.

Dr. W. W. PARKER, of Richmond, read a paper entitled "A Few Original Observations on Blood Gravitation in Health and Disease."

Outline Tests for Muscular Insufficiencies of the Eye.

—Dr. A. C. PALMER, of Norfolk, read a paper on this subject. Leaving out of consideration cases of strabismus, etc., he confined his attention to the more minute forms of insufficiency known by the term heterophoria. In strabismus one eye soon accustomed itself to see the object looked at while the other was idle. In heterophoria there was acute normal vision, in which every detail of an object was seen; but the external rectus of one or both eyes was too weak to prevent the internal rectus muscle from turning the ball in just past the normal axis. Eyes such as these had to swing a very little way to make the image seen with one eye a little to one side of that seen with the other; and the confusion resulting was all the worse from the very fact that each eye saw so clearly that neither image could be ignored. The patient had before him two similar images, which were continually receding from and blending with one another. But he would involuntarily overcome this blurring of outlines if he could possibly spur up the externus mus-

cle to pull the eye out to its proper place. Just these insufficiencies or strains produced more mischief than true strabismus. Prisms deflected an image toward their apices or their edges. The relative strength of each of the four recti muscles in their normal conditions was presumed to be first ascertained. Thus the externi should diverge the eyes sufficiently to make the image single when prisms of 8° were placed before them with their bases in. The interni, after a little trying, should converge sufficiently to produce single images when prisms of 50° were placed before them bases out. If a patient with neurasthenia presented himself he should stand erect and direct his vision on a lighted candle twenty feet off. Then each eye should be covered alternately, and notice taken as to whether the light seemed to move up or down or to the right or left. This parallax test, introduced by Dr. Alexander Duane, of New York, often established at once the form of insufficiency. But, should it not do so, then the prism test should be used, which the author described in detail. He then explained the application of glasses to overcome each of the insufficiencies.

Therapeutic Position in Sexual Congress was the title of a paper by Dr. HENRY V. GRAY, of Roanoke, who recommended that, in cases of pelvic inflammatory troubles that were aggravated by coitus in the ordinary fashion, the woman should assume Sims's posture, and the man approach her from behind. He referred to several cases in which this device had relieved the pain of intercourse.

A paper on "The Use and Abuse of the Obstetric Forceps" was read by Dr. D. MAYER, of Charleston, W. Va., a delegate from the Medical Society of West Virginia.

Dr. L. B. ANDERSON, of Norfolk, presented a Report on Hygiene and Public Health.

Dr. J. G. WILTSHIRE, of Baltimore (present by invitation), read a paper on "Anæsthetics."

Book Notices.

College Botany, including Organography, Vegetable Histology, Vegetable Physiology, and Vegetable Taxonomy, with a Brief Account of the Succession of Plants in Geological Time, and a Glossary of Botanical Terms; being a Revised and Enlarged Edition of the "Elements of Botany." With nearly Six Hundred Illustrations, largely from Drawings by the Author. By EDSON S. BASTIN, A. M., F. R. M. S., Professor of Botany, Materia Medica, and Microscopy in the Chicago College of Pharmacy. Chicago: G. P. Englehard & Co., 1889. Pp. 15-451. [Price, \$3.]

This work, compiled, as the author states, chiefly as an introductory text-book for use in our higher academies and colleges, we take pleasure in recommending, after a somewhat careful examination, as one of the best aids to the study of the interesting topic of which it treats that have appeared. The author has succeeded, by the logical arrangement of his subject, the lucid, simple, non-technical language of the text, and the copious, well-executed illustrations, in bringing our knowledge of the life-history of plants within the comprehension of any student of average intelligence, and the plan he has adopted of giving practical exercises at the close of each chapter, directing the student how to verify the previous lesson by his own experiments, adds great value to the work, and tends to make the study a pleasant recreation instead of a dry task. The execution of the wood-cuts is very creditable to the engraver, and the printing is all we could desire.

BOOKS AND PAMPHLETS RECEIVED.

Die allgemeine Pathologie, oder die Lehre von den Ursachen und dem Wesen der Krankheitsprocesse. Von Dr. Edwin Klebs, O. Ö. Professor der allgemeinen Pathologie und der path. Anatomie an der Universität Zürich. Zweiter Theil. Störungen des Baues und der Zusammensetzung. (Allgemeine path. Morphologie.) Mit 79 farbigen Abbildungen in Text und 47 Farbentafeln. Jena: Gustav Fischer, 1889. Pp. xviii-836. [Price, 30 Marks.]

The Diseases of Children, Medical and Surgical. By Henry Ashby, M. D. Lond., M. R. C. P., Physician to the General Hospital for Sick Children, Manchester, etc., and G. A. Wright, B. A., M. B. Oxon., F. R. C. S. Eng., Assistant Surgeon to the Manchester Royal Infirmary, etc. London and New York: Longmans, Green, & Co, 1889. Pp. xix-681. [Price, \$6.]

Mother, Nurse, and Infant: a Manual especially adapted for the Guidance of Mothers and Monthly Nurses, comprising Full Instruction in regard to Pregnancy, Preparation for Childbirth, and the Care of Mother and Child, and designed to impart so much Knowledge of Anatomy, Physiology, Midwifery, and the Proper Use of Medicines as will serve intelligently to direct the Wife, Mother, and Nurse in all Emergencies. By S. P. Sackett, M. D. New York: H. Campbell & Co., 1889. Pp. viii-13 to 387.

Syphilis of the Nervous System. By H. C. Wood, M. D., LL. D. Detroit: George S. Davis, 1889. [The Physicians' Leisure Library.]

Fourth Annual Report of the State Board of Health of the State of Maine. For the Fiscal Year ending December 31, 1888.

Seventh Annual Report of the Provincial Board of Health of Ontario, being for the Year 1888.

An Experimental Study of Intestinal Anastomosis, with some Practical Suggestions as to a Modified Technique. By A. V. L. Brokaw, M. D., St. Louis, Mo. [Reprinted from the "Weekly Medical Review."]

Styrone: A Consideration of its Value as an Antiseptic. Copaiba in Surgery. By H. H. A. Beach, M. D., Visiting Surgeon to the Massachusetts General Hospital. [Reprinted from the "Boston Medical and Surgical Journal."]

Dress Reform and its Relation to Medicine. By S. Knopf, M. D., Los Angeles, Cal. [Reprinted from the "Southern California Practitioner."]

Light Gymnastics for Schools. By F. N. Whittier A. M., M. D., Director of Sargent Gymnasium, Bowdoin College, Brunswick, Me. [Reprinted from the "Fourth Annual Report of the State Board of Health of Maine."]

The Hydro-therapeutic Treatment of Typhoid Fever. By G. C. Smythe, A. M., M. D., Greencastle, Ind. [Reprinted from the "Transactions of the Indiana State Medical Society."]

Notes on the Electro-Magnet in Ophthalmology, with a Report of Nine Cases. By William Ellery Briggs, M. D., Sacramento, Cal. [Reprinted from the "Occidental Medical Times."]

A Few Observations on the Ætiology, Prognosis, and Cure of Incipient Cataract without Operative Interference. By A. R. Baker, M. D., Cleveland, O. [Reprinted from the "Transactions of the Ohio State Medical Society."]

The Treatment of Typhoid Fever. By William G. Daggett, A. B., M. D., New Haven, Conn. [Reprinted from the "Proceedings of the Connecticut Medical Society."]

The Treatment of Fractures of the Neck of the Femur by Immediate Reduction and Permanent Fixation. By N. Senn, M. D., Ph. D., of Milwaukee, Wis. [Reprinted from the "Journal of the American Medical Association."]

Du traitement des fibromes utérins, par la méthode d'Apostoli (l'électrolyse utérine), avec une lettre-préface du Dr. Apostoli. Par le Dr. Delétang (des Nantes), chargé du service d'électrothérapie des hôpitaux de Nantes. Paris: O. Doin, 1889.

The Nervo-vascular System. [Three charts.] Arranged by W. Henry Price and S. Potts Eagleton. Philadelphia: F. A. Davis. [Price, 50 cents.]

Fibromes utérins, leur traitement par l'électrolyse (méthode Apostoli) et leur élimination fréquente sous-inuqueuse par l'action de l'élec-

tricité. Par le Docteur La Torre (de Rome), etc. [Extrait, revu et augmenté des "Archives de tocologie."] Paris: O. Doin, 1889.

Some Uterine Displacements not Curable. What shall we do with them? By W. F. Rochelle, M. D., Jackson. (Read before the Tennessee State Medical Society at its Fifty-sixth Annual Meeting.)

Miscellany.

The American Public Health Association.—The seventeenth annual meeting will be held in the hall of the Brooklyn Institute, Washington and Concord Streets, Brooklyn, on October 22d, 23d, 24th, and 25th. Addresses of welcome will be delivered by the Hon. Alfred C. Chapin, Mayor, on behalf of the city, and by Dr. Alexander Hutchins, on behalf of the medical profession. The following topics have been selected for consideration at the meeting: "The Causes and Prevention of Infant Mortality"; "Railway Sanitation" (heating and ventilation of railway passenger coaches; water-supply, water-closets, etc.; carrying passengers infected with communicable diseases); "Steamship Sanitation"; "Methods of Scientific Cooking"; "Yellow Fever" (the unprotected avenues through which yellow fever is liable to be brought into the United States; the sanitary requirements necessary to render a town or city proof against an epidemic of yellow fever; the course to be taken by local health authorities upon the outbreak of yellow fever); "The Prevention and Restriction of Tuberculosis in Man"; "Methods of Prevention of Diphtheria, with Results of such Methods"; "How far should Health Authorities be permitted to apply known Preventive Measures for the Control of Diphtheria?" "Compulsory Vaccination"; "Sanitation of Asylums, Prisons, Jails, and other Eleemosynary Institutions."

It is the purpose of the association to provide an exhibition of everything available adapted to the promotion of health. The exhibits will be classified as follows: I.—*The Dwelling*: 1. Dwellings; models and designs for sanitary dwellings. 2. Treatment of the site; foundations, drainage, drainage-tiles, etc. 3. Materials for construction; bricks, tiles, floors, cements, etc. 4. Heating; devices and appliances for furnaces, stoves, and water and steam heating apparatus. 5. Ventilation. 6. Lighting. 7. Domestic water supply, purification, filters, water fittings, etc. 8. Plumbing; traps, sinks, water-closets, baths, etc. 9. Disposal of waste; domestic garbage destructors, garbage receptacles, etc. 10. Sanitary furniture, refrigerators, wall-paper (non-arsenical), floor-coverings, etc. II.—*Schools and Education*: 11. Plans and models for improved school buildings. 12. Heating, ventilation, lighting. 13. Furniture and fittings. 14. Improved books, printing, etc. 15. Gymnastic apparatus. 16. Works on sanitary topics. III.—*Factories and Workshops*: 17. Designs and models for improvements in factories and workshops. 18. Life- and health-saving devices. 19. Special devices for removing dust and effluvia and preventing injuries from the same. IV.—*Clothing and Dress*: 20. Improved materials and garments, etc. V.—*Food*: 21. Selected displays of unprepared animal and vegetable substances used as food or in the preparation of food. 22. Prepared vegetable substances used as food, including canned and prepared and preserved fruits and vegetables; prepared cereals, meals, flour, biscuits, bread, etc.; syrups, sugars, etc. 23. Prepared animal substances used as food; canned, smoked, salted, preserved, and prepared animal foods, including honey. 24. Products of the dairy. 25. Beverages of all kinds; alcoholic, non-alcoholic, tea, coffee, cocoa, chocolate, etc. 26. New varieties of food; food for infants and invalids. 27. Articles and devices used in the preparation of food; cooking stoves, ranges, etc.; vessels for preserving food, etc. 28. Adulterants and adulteration. VI.—*Sanitary Engineering*: 29. Plans for sewerage and sewage disposal. 30. Plans for drainage. 31. Plans for water-supply, including purification, filtration, etc. VII.—*Public Health Administration in Cities and Towns*: 32. Treatment of contagious diseases, including plans for hospitals for the same. 33. Vital statistics, blanks, etc. 34. Disposal of waste, garbage destructors, odorless apparatus. 35. Anti-

septics, disinfectants, and disinfection. 36. Reports of local and State boards of health. VIII.—*The Laboratory*: 37. Instruments of precision in meteorology, thermometers, barometers, hygrometers, etc. 38. General chemical apparatus for a health laboratory. 39. Microscopes, etc. 40. Biological apparatus, cultivations, etc. IX.—*Red Cross Section*. The exhibition will be held in the hall at the northwest corner of Fulton and Pineapple Streets, one block from the Brooklyn Institute, where the sessions of the association will be held, and but three blocks from the bridge. It will be opened to the public on October 22d, at 1 P. M., and will continue open until December 1st. Admission free. Applications for space may be made to any member of the Committee on Exhibits, accompanied with details as to name and character of articles proposed, space required, and the name and address of the applicant. To cover the necessary expenses of the exhibition, each exhibitor will be charged ten dollars, allowing him twenty square feet of floor space, and thirty cents a square foot for additional space, to be paid on the second day of the exhibition. All proposals for exhibition and applications for space are subject to the approval of the Committee on Exhibits, and should, therefore, be made as promptly as practicable. At the close of the exhibition the association will award diplomas to exhibitors of especially meritorious articles, based upon the judgment of experts.

The chairman of the Committee on Exhibits is Dr. A. N. Bell, No. 113a Second Place, Brooklyn; its secretary is Dr. E. H. Bartley, 21 Lafayette Avenue, Brooklyn.

The Health of Connecticut.—According to the State Board of Health's "Monthly Bulletin," the total number of deaths reported from 167 towns during the month of August was 1,190, including 5 from scarlet fever, 15 from cerebro-spinal meningitis, 46 from diphtheria and eroup, 15 from whooping-cough, 3 from erysipelas, 45 from typhoid fever, 9 from malarial fever, and 12 from typho-malarial fever. There were also 120 deaths from consumption, 25 from pneumonia, and 13 from bronchitis.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending September 20th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhoid.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Sept. 14.	1,581,179	624	..	..	..	..	..	15	2	19	1	8
Chicago, Ill.	Sept. 14.	1,100,000	360	..	..	..	..	..	9	2	17	..	4
Philadelphia, Pa.	Sept. 14.	1,040,245	352	..	..	..	..	..	19	4	1	..	5
Brooklyn, N. Y.	Sept. 14.	834,607	323	..	..	..	..	..	5	1	13	..	2
Baltimore, Md.	Sept. 14.	500,343	164	..	..	..	..	..	6	1	5	..	2
St. Louis, Mo.	Sept. 14.	450,000	165	..	..	..	..	..	5	2	5	..	..
Cincinnati, Ohio.	Sept. 14.	325,000	108	..	..	..	..	..	3	..	4	2	..
New Orleans, La.	Sept. 7.	254,000	113	..	..	..	..	..	1	..	4	..	1
Washington, D. C.	Sept. 14.	250,000	101	..	..	..	..	..	6	..	9	..	..
Detroit, Mich.	Aug. 31.	250,000	79	..	..	..	..	..	2	2	..	..	1
Detroit, Mich.	Sept. 7.	250,000	67	..	..	..	..	..	3	..	2	..	2
Cleveland, Ohio.	July 27.	235,000	108	..	..	..	..	..	2	..	7	2	..
Cleveland, Ohio.	Aug. 3.	235,000	114	..	..	..	..	..	3	1	5	1	..
Pittsburgh, Pa.	Sept. 14.	230,000	65	..	..	..	..	..	6	1	4	1	..
Louisville, Ky.	Sept. 7.	227,000	65	..	..	..	..	..	3	..	..	..	..
Minneapolis, Minn.	Sept. 14.	200,000	28	..	..	..	..	..	2	..	1	..	..
Providence, R. I.	Sept. 14.	127,000	50	..	..	..	..	..	1	4	4	1	..
Indianapolis, Ind.	Sept. 13.	124,450	24	..	..	..	..	..	1	..	1	..	..
Denver, Col.	Sept. 13.	100,000	41	..	..	..	..	..	11	..	1	1	..
Richmond, Va.	Sept. 14.	100,000	35	..	..	..	..	..	3	2	..	..	..
Toledo, Ohio.	Sept. 13.	89,000	19	..	..	..	..	..	1	..	1	..	..
Fall River, Mass.	Sept. 14.	69,000	35	..	..	..	..	..	2	..	..	..	1
Nashville, Tenn.	Sept. 14.	65,153	17	..	..	..	..	..	1	..	..	..	..
Charleston, S. C.	Sept. 14.	60,145	38	..	..	..	..	..	..	..	..	..	..
Lynn, Mass.	Sept. 14.	50,000	18	..	..	..	..	..	..	..	..	..	..
Portland, Me.	Sept. 14.	42,000	17	..	..	..	..	..	..	..	..	..	..
Manchester, N. H.	Sept. 7.	42,000	21	..	..	..	..	..	1	..	1	..	..
Galveston, Texas.	Sept. 6.	40,000	11	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	Sept. 14.	30,000	10	..	..	..	..	..	2	..	..	..	..
Altoona, Pa.	Sept. 7.	30,000	6	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	Sept. 14.	26,000	11	..	..	..	..	..	..	..	1	..	..
Haverhill, Mass.	Sept. 14.	25,000	4	..	..	..	..	..	..	..	..	..	..
Newton, Mass.	Sept. 7.	21,553	2	..	..	..	..	..	..	..	..	..	..
Rock Island, Ill.	Sept. 15.	16,000	..	..	..	..	..	..	..	..	..	..	..
Keokuk, Iowa.	Sept. 14.	16,000	2	..	..	..	..	..	..	..	..	..	..
Pensacola, Fla.	Sept. 7.	15,000	11	..	..	..	..	..	..	..	..	..	..

Parasitic Fœtus in a Multiparous Woman.—Early in 1888 we published an account of Laloo, the Indian boy, who bears a parasitic fœtus

attached to his epigastrium, consisting chiefly of the four extremities and nates. Messrs. Sutton and Shattock reported the case in the "Pathological Transactions" for the same year. Another case of parasitic fœtus is described by Dr. E. Bugnion in the "Revue médicale de la Suisse Romande" for June, 1889. The patient, whose photograph adorns the paper, is a well-developed young woman with regular features. She was born in 1869. In front of the pubes is attached a rudimentary pelvis bearing two long, deformed, and partly atrophied lower extremities. Rudimentary nipples were found in the integument of the autosite's groin on each side of the attachment of the pedicle of the parasite. There were no signs of any external genitals on the parasite. The vulvar orifice of the autosite is anteriorly encroached upon by the parasite, and is pushed backward so that the perineum is reduced to a thin septum. The autosite, Louise L., of Reims, walks well; the monstrosity shows but little. She married three months before her fifteenth birthday. In March, 1885, her first, and in December, 1888, her second, child was born. She was suckling the latter when Dr. Bugnion examined her. He describes her as a dipygus parasiticus, or more strictly as a *pubimèle* or *pygomèle pubien*. She is known as the *dame à quatre jambes*, and has been on show for some time, after the fashion of most monsters.—*Brit. Med. Jour.*

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

AN ADDRESS,

DELIVERED ON THE OCCASION OF THE
LAYING OF THE CORNER-STONE OF THE NEW BUILDING OF
THE NEW YORK ACADEMY OF MEDICINE,

On Wednesday, October 2, 1889.

By ABRAHAM JACOBI, M. D.

THE New York Academy of Medicine has called upon the profession and the public alike to assist it in this ceremony of laying a corner-stone. Where we are now standing there will be the home of the Academy, we believe, for generations to come. If we are mistaken, if this large building is too small before long, it will be the pleasant duty of our successors to provide for their wants. That this may become necessary is possible, for the Academy has experienced a development rapid beyond expectation. Forty-three years ago it was founded; for dozens of years it held its meetings in hired quarters; ten years ago it occupied its own building, No. 12 West Thirty-first Street; today we are preparing accommodations such as the profession of New York, or any other city of the country, has never possessed. Meanwhile, however, the spirit and the aims of the Academy have remained intact. Among these aims are the cultivation of the science of medicine and the promotion of public health.

In the words of a circular published nearly two years ago in behalf of our building fund, "these purposes are accomplished by lectures and discussions in the stated meetings of the Academy and its numerous sections; by maintaining reading-rooms which furnish nearly all the medical journals of the world, and by collecting a library containing about sixty thousand books and pamphlets, which are free both to the medical profession and the public." The number of its fellows is nearly six hundred. They have been selected from among those who have practiced medicine in New York city or its vicinity three or more years. Some time ago fellowship was extended to those residing in the State.

In its composition the Academy participates in many of the peculiar features of our political organization, which means to benefit all through the co-operation, if not of all, still of the best. In Europe an academy of medicine means a small body comprising a few select men only, appointed by the body itself when there is a vacancy, or by the political rulers. Thus the academies form an aristocracy of the mind parallel to the aristocracy of birth, with all its exclusiveness and real or assumed superiority. They are representative bodies only in this, that the best minds and most scientific workers are expected or believed to fill the seats.

The New York Academy of Medicine, however, is a democratic institution. It is not limited in numbers; on the contrary, it is desirable that the many respectable physicians should gather round its flag. Like our political commonwealth, it must look for its development and success in the co-operation of the competent and cultured

masses. Like the Union, it is a voluntary confederation of peers who make their own laws and obey them because they are of their own making.

The members have common interests both scientific and professional. Since its foundation, with the changes for good and bad appertaining to everything organic, the Academy has prospered constantly, in spite of, or, as I am more inclined to say, in consequence of its very constitution as an independent and democratic body. In the words of the same circular alluded to before, "the Academy is not connected with any school or college. It is self-supporting and is carried on in the interest of the whole profession. There are no fees nor emoluments of a private or individual nature. It is not supported nor subsidized by the State or municipality." Whatever has been accomplished by it: its scientific labors, most of which are laid down in its "Bulletins" and "Transactions," and in the medical journals of the country; the hall in West Thirty-first Street; the library and reading-rooms in the upper stories; the wealth of books and journals at the disposal of those eager to learn, and so numerous that they alone compelled us to look for more appropriate quarters—all of that has been created, with few exceptions, by the exertions and pecuniary sacrifices of the medical men themselves.

All classes of these are represented in the Academy. It shows you the choice of those who are interested and active in the promotion of medical science and art; those who have earned an international reputation; those who have deserved well of the community by a life filled with services rendered to the public; and those who look forward for the fulfilling of their dreams and the reaching of their aims through coming years of honest labor spent on theoretical study and practical work. In this co-operation of the old and young, the illustrious and those yet unknown, but promising or anxious to earn renown, the mature and the maturing, you have one of the features of a unity of the profession.

Another feature of unity, which, moreover, ties the profession indissolubly to the community at large, is the labor performed in the service of one and all. It is in these labors and their results that the community at large ought to take a deep interest. Modern medicine is probably the greatest benefactor of mankind. The more medicine has been founded on the study of the exact sciences, chemistry, physics, and physiology with mathematics, the more has its field of usefulness enlarged. The more theoretical it appeared to become, the more did it develop practical usefulness and dignity. Indeed, the dignity of a science or study rises with its capability of being utilized in the service of mankind. Now, the promotion of medical science and art does not mean only the improvement in diagnosis and in the administration of drugs and remedies, but the discovery of the best means of placing the human being in the best possible condition. The labor of the physician is not exhausted by carrying you through a severe case of illness; he renders you the greater service, less remunerative to him though, of preventing you from falling sick.

The peculiar relations of the individual physician to his

patient or the family intrusted to his care are widened in the relations of the profession to the public. Great epidemics take the place of a single case, the protection of a community that of the guarding a person, the hygiene of schools that of a dwelling, the sanitation of a large city that of inspecting a suspicious trap or sewer in a private domicile. The more in your health department the medical element predominates over the military and political, the more actual benefit will the people derive from it. The hygiene of the whole population—the superintendence of public buildings in which many people, old or young, are gathered, public hospitals, quarantine stations; the questions of physical and mental elevation, of legal responsibility, of the State care of the insane—they all belong to the domain of the profession. This is not theory only. No grave question of the kind has come up without the gratuitous and spontaneous aid of medical men. The health board of the city has long appreciated that. The Academy has furnished a consulting board to all the health department's hospitals. A committee of the Academy was intrusted with the inquiry into and the report on the condition of Quarantine. It is to its report that the first appropriation for the rebuilding of the Quarantine Station was due, and to its recommendations that improvements are being carried out at the present time. In this way the medical profession excludes epidemics, and guards both the physical health and the economic interests of the city. Imagine the pecuniary loss to the city if the cholera and the yellow-fever scare of a year and two years ago had not been prevented by the profession, as indeed it was. A week's panic would have been a pecuniary calamity amounting to the loss of a good many millions.

These are but a few examples of the value of medical services, both paid and unpaid ones, to the public. The health of the city is the foundation of its prosperity. Let epidemics prevail, and not only will your children die, your families be decimated, and the graveyards fill with places where flowers and tears mingle, but your commerce will be drawn to other ports. It is due to increased knowledge and activity on the part of the profession, both official and unofficial, that, in spite of the unchanged severity of the epidemics and the rapidly increasing population of the city, the number of cases of diphtheria shows an absolute diminution.

Such among many are the services of the profession, not to speak of the gratuitous daily work of hundreds of medical men in the hospitals and dispensaries. Nobody can count or calculate, but everybody can appreciate, how many lives are preserved, how many millions are saved for the poor and rich alike. From that point of view a whole-souled, generous woman presented to the Academy twenty-five thousand dollars, in recognition of the services to the public on the part of the profession, and in accordance with the esteem her husband had held the profession in while he was alive. To this consideration we owe the bequest of seventy thousand dollars, coming to us under the will of Mrs. Alexander Hosack, who had spent a large part of her valuable life with illustrious examples of professional worth. All we require now is fifty thousand dollars to complete

this building. There must be many who have that sum or a part of it to spare in the interest of the profession; perhaps to commemorate the name of a dear one who has passed away, or to imprint his or her name—and a legitimate ambition it is—on one of the halls of the new building, or to perpetuate the memory of one who has been saved from a premature grave by the endeavors of one of those who are now striving to erect a home for the most practical and beneficent of all sciences and arts.

It is a home we want, more than merely a house. To make the house of the medical profession a home, it requires a library. This is to the profession what a tool is to the mechanic, an engine to the engineer, a telescope to the astronomer. A complete library represents the thoughts, experience, genius, and discoveries both of all previous centuries and of the present time. All these treasures must be accessible to the profession whose knowledge and skill is to be the safeguard of the public's best interests. To accomplish that end, the whole medical literature of all countries must contribute. New York has never been satisfied with anything that is second class; it can not afford to trust itself to a profession without the first order of learning and erudition.

Why do we insist upon physicians being erudite? Do I ask, Why do you apply to a particular watchmaker, an engineer, an architect, a milliner? You select him because you believe or know him to be well informed or skillful. And the physician? His practice is the application of knowledge acquired by hard brain work spent on all the learning and practice which have been evolved out of the labor and efforts of thirty centuries. A learned doctor may happen to be an unsuccessful practitioner, for more reasons than one; but among those reasons erudition is not. An uninformed man is never a good practitioner; under equal circumstances, the more learned man is the better man in practice. Practice and learning do not exclude each other; on the contrary, the former depends on the latter. It ought not to suffice for your selection of a doctor that you met him at a bar, or a ball, or at a church meeting, or at whist, in a concert, or on a hotel piazza, or that he is well dressed, pleasant, and tells you he is your "friend"; all these are fine opportunities and agreeable social and personal qualities which may also be considered when you are credibly informed that he burns midnight oil over medical literature and that his professional brethren speak well of his abilities and achievements. And as far as medical friendships are concerned, your best friend is he who knows best how to protect you and your children and your parents from disease, and to cure them when they are sick.

The erudition we claim for the profession demands a large library of constant growth. A fund of one hundred thousand dollars will enable us to keep abreast with any similar institution. The library of the Surgeon-General's Office in Washington, which contains at present seventy thousand volumes and one hundred and thirty thousand pamphlets, is the result of industrious and systematic collections. It is not much over twenty years old, but it is the richest and most complete medical library in the world. Still its annual appropriations for the purchase of books

have seldom exceeded five thousand dollars. Thus a fund of a hundred thousand dollars will enable us to procure nearly everything medical that appears in any land. Of that sum we have only ten thousand dollars. One half of that sum was set aside by the Academy, the other half is a donation separately administered in perpetual honor of a departed one. Such special funds, or additions to our general library fund, are urgently requested. The citizens of New York have developed a metropolis of large size and commercial power; they can well afford to tax themselves in the interest of medical science, than which there is none more cosmopolitan and humanitarian.

But it is not the medical profession only which will be directly benefited by the endowment of a large and complete library. Our library is a public one, free to the profession and the public. Now, there is a class of literature which in a free and public library like ours ought to be well represented. Laymen intending to avail themselves of it expect to find mental food adapted to their comprehension and taste. That sort of literature is by no means scarce. Much of it is of fair quality, some of it surpassingly good. Books on anatomical and physiological topics, those on subjects connected with natural history, hygiene, and statistics, will always be found interesting and instructive. They ought to be well represented in our library, for they can not be found in large numbers in the public and circulating libraries. Indeed, the frequenters of the latter differ much from the class of readers consulting ours.

The additional knowledge acquired in this matter will not only improve a man's ability to protect himself and his family; it will also facilitate the work of his doctor. A person who has filled his mind with comprehensible ideas and sound facts will no longer study quack advertisements. He who has learned something about the functions of his body, and been taught to consider the correlation of causes and effects, can appreciate a disease to be the result of either a preventible or an unavoidable cause, and recognize that whatever disease was not the result of faith can not be cured by faith, not even by faith in panaceas. The business of the quack may thus cease, the nostrum-mixers may suffer, but individual and public health will be the gainers. There is less sickness in a man who has some knowledge of his body and its requirements; and when he falls sick he expects relief from natural and intelligible sources only. That man is a better patient, more accessible to reasoning, more obedient to the rules imposed in the interest of recovery. If he knows enough to recognize the superiority or inferiority of his physician, so much the better. To-day most people have not a sufficient knowledge to guide them in their selection; there are many who are so little informed that they do not so much as care. If in a matter ever so trifling a medical man is called as a witness before a court of justice, the first question he is asked refers to his membership in a medical society. The uninformed public, however, often select their doctor for reasons known to nobody, least perhaps to themselves. All this would be changed if a small part of what is the basis of a physician's thinking and knowing were made accessible and intelligible to every man and woman. A library like that which we

intend to establish is destined not only to supply the professional man, but to furnish healthy mental food to all those who are thirsty for knowledge. Those who have means to spare in the interest of public education, hygiene, and health, can not possibly apply them better than by providing for a library fund sufficient for the gradual accumulation, from year to year, under the supervision of experts, of all the good popular literature on the subjects of anatomy, physiology, hygiene, dietetics, and statistics.

May all this become true. We are preparing this edifice to be the head-center of medical study in the city, an example to the profession of the country, and a resort for the brethren who come to us from near or distant parts. This building when completed will be an ornament to the metropolis. What is still more important is that we mean it to become, and feel assured that it will be, an additional element of intellectual and ethical power, and in its results a blessing to the commonwealth.

Original Communications.

ANGULAR CURVATURE.

NATURE OF THE PHYSIOLOGICAL FAILURES WHICH SUPERINDUCE VERTEBRAL DEFORMITY.

BY GEORGE H. TAYLOR, M. D.

WE are now in a position to understand more fully the nature, kind, and degree of the several physiological defects which culminate in posterior deviation of form of the spinal column and the morbid changes of figure associated therewith.

Since the spinal muscles are charged with the duty of maintaining the erect position and of executing the motions of the column, these muscles are necessarily associated with its functions of elasticity and flexibility, on which, as has been shown, its nutrition and therefore its health depend. The columnar functions are consequently in a sense derived, inasmuch as the force required in the execution of flexion, elasticity, and even sustentation, is yielded to it by its muscles. The muscular force is resolvable into the two physical forms of mechanical (or dynamic), which changes the relations of parts *en masse*, and the chemical, which changes the relations of constituent elements, and thus the constitution of the mass. The manifestation of force or energy in the above-named forms implies expenditure of material entering the organism as nutrition, and is the indispensable condition for the resupply of such material to the acting muscles. Muscular nutrition requires muscular expenditure; otherwise it becomes both faulty and insufficient.

Failure of the spinal and associated muscles leaves the column unsupported in proportion to the degree of such failure. Insufficient power of these muscles affords inadequate support, and at the same time withdraws from the column its elastic and its flexile functions, and thereby inflicts on it grievous injury, which, if continued, becomes incorporated in some morbid form in its tissue.

The immediate effect of suspension of muscular power is well illustrated in a case of falling asleep in the sitting posture. The head and shoulders are surrendered to gravitation, are pulled forward, causing the column, the posterior boundary of the body, to become *bent*, the convexity being backward. When, therefore, a posterior curvature is observed, the inference is unavoidable that the weight of the upper portion of the trunk has for some time been inadequately or improperly supported by the parts to which nature has assigned that duty. The difference in the two cases is that, in case of sleep, the supporting muscles immediately resume control when slumber has departed, while in that of deformation the loss of control of the column by its muscles is absolute. A renewal of the supporting power of the appropriate muscles is required alike in both instances. Substitutional and indirect methods of support are impracticable; if practicable, then injurious, because undermining the vital power of the muscles, on which the responsibility of support ultimately falls.

The above statements, so far as representing the supporting function of the spinal and associated muscles, are too obvious to admit of question. Indeed, the therapeutics of angular deformities is practically based on them. But mechanico-dynamic facts are only partial, and alone afford erroneous therapeutic views and practice. The inseparable accompaniment of the mechanico-physics of muscular function is its chemico-physics. It is essential that this department of muscular function be practically recognized. Otherwise the therapist is indifferent as to the source and the nature of support, and falls into the error that mechanism will serve the desired end, even though vito-chemical physics, of which muscles are the sole source, be omitted, even ignored. For muscular support of the column, though dynamic and mechanical as respects the column, yet involves change of the substance yielding the energy affecting every cell of the muscles engaged, and as far beyond as the motor influence extends. This last process is as essential to the maintenance of the muscle and the perpetuity of the supporting power as are the motions communicated to the column to the maintenance of *its* nutrition and functions. Both necessarily fail in the absence or even decline of these indispensable conditions. Nutritive acts are the fundamental basis of all organic power, and it is idle to devise substitutes therefor.

The attempted substitution of mechanical devices for the natural supporting power, under the idea that such substitution is somehow remedial, grows out of the restricted conception of the needs of this class of cases, and of the physiology of muscular functions above shown. The necessity to the sufferer for the vito-chemical phase of muscular functioning is lost sight of, and all provisions for supplying that need are consequently omitted. When, therefore, it is found that the spinal column has developed a posterior projection, angular or otherwise, much more is signified than defect of mechanical support. The disastrous consequence to the form of the vertebræ is ushered in and, in general, attended by defective functioning of muscles in their vito-chemical phase of function, precedent to their mechanical failure. It is easily seen that the supply of mechanical sup-

port by art, however perfect this may be, can not have the least influence toward restoring an adequate vito-chemical phase of muscular function, nor can such supply mitigate the consequences arising from defective chemical functioning of muscles.

The morbid posterior projection of the spinal column includes, therefore, the following particulars: Defective support and defective control of the motions due the column by the muscles on which this mechanical function devolves; defective evolution of energy in its dynamic form by the same muscles; defective degree attained by their vito-chemical functioning; defective elimination of products of waste due to such functioning; injurious retention of unfunctioned, and therefore unstable, ingredients. The muscles henceforth become incapable of providing for the nutrition and renewal of their own substance. This defect imposes the same disadvantage on the tissues of the column, which have been shown to depend on the energy developed in muscular substance. These failures are necessarily self-perpetuated. Remedies are required to reach, not merely *one*, but each and all these several defects above shown.

Spinous Processes and their Functions.—To show more clearly the way in which muscular failures operate upon the mechanism of the column to produce the morbid form, further details respecting its mechanical and its vital constitution are necessary. In describing the vertebræ, their *spinous processes*, projecting posteriorly from each, were mentioned. These processes are very intimately connected with the development of the morbid form under discussion—not merely because of the extraordinary prominence of one or more of them which characterizes and affords the earliest intimation of the disease, but also because these processes have a direct and important mechanical function in connection with the supporting muscles.

The spinous processes may be assumed to project from a half-inch at the lower part of the column to an inch and a half at its upper portion. They incline downward (the upper much more than the lower), thus overlapping each other, and, when the column is erect, consolidating the vertebræ into a whole of extraordinary resisting power, since the arrangement described practically increases the antero-posterior diameter of the column.

The great importance of these spines lies in their function as mechanical levers, through which the control of the column by its muscles is increased many times. Their aggregate length determines the aggregate leverage they afford for any force applied at their ends—the fulcrum being the center of the vertebræ. The physiological purpose of this mechanism is too clear to be mistaken. It affords a practical and effective counterpoise to the weight of the trunk anterior to the column so long as it is available. This counterpoise declines and ceases with the decline and suspension of the power by which it is made effective. Thenceforward the column is practically shorn of its spines. They become again operative through restoration of the spinal muscles to their due power, while under artificial mechanical support they are of no account.

The spinous processes present an extensive surface for the attachment of the muscles which control the column

through them. The peculiar and complex arrangements of these muscles, their divisions and subdivisions, their extension from the bodies of vertebræ to the spines of other vertebræ, and the contrary, well known to students of anatomy, are admirably adapted to afford all the complex motor results which the column is well known to manifest. The acts of bending, twisting, and combinations of these motions become practicable and easy. In these motions the spinous processes engage, and thereby become instrumental in largely increasing the initial energy afforded by the spinal and associated muscles.

The importance of the forces, dynamic and vito-chemical, having their seat in the spinal and associated muscles, is so great and so liable to escape recognition in practice, and the consequences of failure are so difficult to overcome, that further illustrations tending to enforce the leading facts appear justifiable.

Let us imagine a piece of wood or whalebone similar to what is sometimes used by ladies—long, thin enough to secure elasticity, and wide enough to resist efforts to bend it in its transverse or widest diameter. Let notches be so deeply cut very near each other, at uniform depth in its breadth, that the uncut portions shall be of nearly equal thickness in both directions. The parts between the notches are comb-like teeth or serrations. These may represent the spinous processes, and the whole (Fig. 1) is a similitude of the spinal column. The piece of wood or bone thus prepared yields to force applied in any direction at any part.

Should a thin slip or string of elastic rubber be deftly attached to the ends of all the projecting spines, the representation of a column would be fitted with a similitude of spinal muscles. If, now, attempts be made to bend this preparation in the direction *opposite* to the spines and rubber, such attempts would be met with stout resistance, and the resistance will be proportionate to the *length* of the teeth or spines. It is thus shown that the spines of the column are true levers, and, by assisting to counterbalance the weight of the anterior part of the body, have the effect of practically moving the center of bodily gravitation forward of the column.

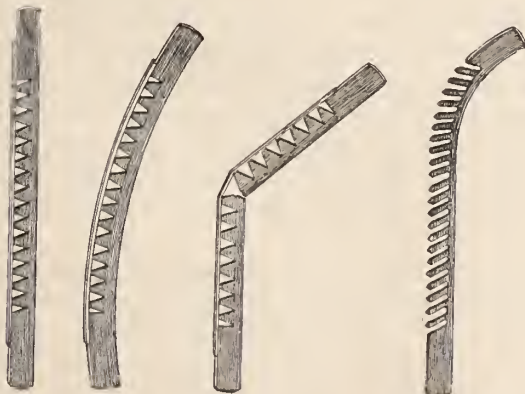


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 4.

Further experimenting with the same mechanical device shows that when the combined resistance of the uncut part and of the rubber is uniform, the act of bending causes it to assume the form of a segment of a circle (Fig. 2). When,

however, force is applied in excess of resistance, the device yields at *one* point only, while the remainder, being entirely released from strain, assumes the form of two straight lines meeting at the yielding point, and the angle formed is exaggerated by the nearest spine becoming thrust outward (Fig. 3).

A slight modification of the device above described enables it to become helpful for the illustration of another mechanical principle represented in the column. If the notches in the elastic object be made diagonal instead of at right angles to the uncut part, the teeth or spines will overlap each other. When it is bent, after connecting the rubber with the ends of the spines as before, these ends are projected outward and upward. The spinous levers, becoming horizontal, are extended further from the body or uncut parts; they are practically longer and afford more leverage (Fig. 4). This shows that when the body is bent, especially forward, nature provides a special mechanism to antagonize the evident mechanical disadvantage of the position. This becomes inoperative in proportion as the spinal muscles are weakened or restrained from any cause.

A very important function of the spines connects them with the form of the column. All healthy persons have *natural* curves of the column, throwing the shoulders and hips backward and the chest and abdomen forward, the center of gravity corresponding with a perpendicular line between these extremes. It is pretty certain that the action of the spinal muscles, acting through the levers provided therefor, is instrumental in causing these curves. The curves are absent in children, and appear with the use of spinal muscles. These curves, therefore, naturally disappear with the suppression or with the loss of muscular power. But the maintenance of the erect position *necessitates* the maintenance of the same perpendicular over the base. The decline and loss of musculo-spinous sustentation causes the trunk to fall forward; the hips are therefore compelled to project in the same direction, and the *intervening part of the column* is carried in the *opposite or backward* direction from mechanical necessity.

Review of the Consequences of Insufficient Power of Spinal and Associated Muscles.—The results toward which decline of function of the sustaining muscles of the column tend may now be clearly understood. The advantages of spinous leverage are unavailable; the weight of the anterior superior portion of the body is unantagonized; the trunk falls forward, dragging the column after it, into a curved or inclined form. The anterior longitudinal half of the column is shortened; its tissues, by virtue of their elasticity, become compressed. This compression takes effect only in the frontal portions of the vertebræ and intervertebral cartilages.

It is under these circumstances that the distinction between the natural *alternate* or interrupted compression and *continuous* compression may be realized. The one is physiological, the other pathological, leading to further advanced pathological states. Physiological compression is never constant; it is alternate and interrupted; in other words, rhythmic. This form of motion is everywhere present in living organisms. The substitution of *continuous* pressure in place of the *interrupted* form is equivalent to suspension

and ultimate destruction of vitality. Decline of the motions characteristic of the column is as fatal to that organ as would be decline of mechanical action of the lungs, the abdomen, the circulatory and other special mechanisms of the body. It means impairment of tissue nutrition; it is a morbid condition and the harbinger of the gravest consequences.

It is necessary at this point to remind the reader that the disclosures of *post-mortems* and the distorted vertebrae seen in pathological museums do not in the least indicate the *causes*, or rather the nature, of the failures of the physiological order to which such results are due. They only represent the stages arrived at in special instances of the disease, not the initial or the intermediate stages, nor the primary factor of the affection. This is simply defective function and cognizable by the understanding rather than the eye.

Continuous pressure of the anterior portion of the columnar tissues produces local consequences which next demand attention. The diminished space into which the structures of the column are crowded urges therefrom the fluid contents of the interspaces of the tissues, closes the inlets for arterial blood, and deprives them of supplies, both of nutritive materials and of oxygen. At the same time the lack of *alternations* of motion prevents that exchange of material necessary for the maintenance of local vitality.

Compression as above defined not only debar inflow of fluids bringing support of vitality, but unquestionably facilitates outflows; for structural parts, under the circumstances of diminishing and departed vitality, tend toward a liquid exit form, and are urged *from* the point suffering morbid compression, to join contiguous venous fluids. This process is technically known as *absorption*. The anterior parts of the vertebral bones and cartilages under this process become thinner than the posterior parts of the same, or wedge-shaped.

A change of form superinduced by local absorption under pressure is by no means confined to the columnar tissues. It is a common occurrence in other tissues subjected to the same or similar causes. Examples are abundant in physiology, pathology, and therapeutics. Local loss of substance is inevitable when vital structures are compressed, whether spontaneously or through the intervention of art. This statement is corroborated by reference to the local effects of the hernial pad of the truss, to the leg on which is worn a tightly fitting garter, to the waist of the would-be fashionable. Local compression is used as a successful surgical recourse to restrain morbid increase, as of tumors. The ligation of arteries to restrain a morbid supply of nutritive materials for a region of the body is a neat instance in point. The effect of pressure in each case accords with what is above stated to occur in the columnar tissues. Examples are not wanting of the same consequences of local compression in osseous structures, as when instruments are applied to crooked limbs, superinducing compression of one side of a shaft of bone to secure straightening. The misshape of vertebrae seen in *lateral curvature* of the column is but another example of morbid compression, partly from weight,

with the co-operation of unequal development or asymmetry of the two lateral halves of the body.

Even the hardened bones of the aged are not exempt from the operation of the same law. The rounded form of the shoulders of old men and women and of those whose occupation compels much continuity of compression of the anterior longitudinal half of the column, are familiar illustrations. Even the lower segment of the column has been molded to a curve under similar influences.

The inquiry will be made, Why is the angular form assumed by the column in some instances, while the curved form results in others apparently similar? The angular form is in accord with the mechanical principles engaged, as has been shown. When a stick is overstrained it breaks at one, not at several points. No object, physical or vital, can possess throughout absolutely uniform powers of resistance. Even this quality could avail nothing, because no assurance would be afforded that morbid forces would be presented to all parts with absolute uniformity. Local manifestations of disease in general indicate the weaker—that is, less resisting—points of the organism.

The plausibility of the theory that local injury to the column is the usual cause of localization, if not of the disease itself, has led to its adoption by many pathologists. When, however, it is considered that children and youth receive numberless blows, shocks, and hurts upon the column, with no other result than rapid recovery, the same as follows in case of injury to other parts, the probability as regards the class of causes mentioned is much diminished. Besides, the most searching inquiries usually fail to elicit any history of previous mechanical injury in angular cases that could be fairly construed as an adequate cause of the morbid outline.

Radical Sources of Angular Deformity.—The mechanical and the dynamic failures which ultimate in vertebral affections have now been outlined. These failures clearly have their source in defective energy due from muscles. The spinal column is composed of tissues which have no motory power, while diversified motory functions are demanded of the column, the execution of which is confided entirely to appropriate muscles, the non-performance of which is in itself morbid and leads to further expressions of disease.

But the failure of musculo-dynamics was stated above to account in part only for the pathological situation, this form of failure being as evident in lateral and other morbid curves of the column as it is in the angular form. Other considerations must be added to complete the pathological picture, and to afford the necessary therapeutic suggestions.

The muscular system has been shown to possess two co-ordinate functions—that of mechanico-physics, which has been sufficiently explained, and that of chemico-physics, whose importance demands further elucidation. While mechanical energy is being expended, whether for objects exterior to the vital organism or those interior to it, organic ingredients are being converted at corresponding rates into the well-known emergent forms. As shown in another connection, the constituent ingredients of the vital organism, together with all superfluous nutritive matters, become in

this way transformed from unstable to stable forms. So far as is known, the muscular system, including the involuntary as well as the voluntary muscles, is both directly and indirectly responsible for the execution of this work.

Now, defective functioning of muscles on the chemico-physical plans may be regarded as resulting in two principal ways, depending on the vital capacities of the subject, natural or acquired. It is unnecessary to refer here to but one of these ways. In this the subject *inherits* weak muscles, especially of the involuntary class—those belonging to internal organs. Or, being bred in unhygienic surroundings, such as defective ventilation, too high temperature of living-rooms, lack of adequate incentives, mental and physical, etc., the same sort of laxity of muscle is *acquired*, especially in youth. The essential defect consists in insufficient motor impulse derived from muscles to insure the desired degree of chemico-vital physics. The consequence of imperfect functioning is that either the gross expenditures are insufficiently transformed, or that a part only of such matters reach emergent forms, while a residue remains unaffected, and of necessity is retained.

The circumstance which determines the last-mentioned condition is the different degrees of susceptibility to the influence of oxygen of the different classes of organic ingredients. The nitrogenized class is much more refractory than the non-nitrogenized, and to secure the physiological degree of oxidation a certain degree of expenditure of motor energy is demanded. This natural difference is, therefore, greatly increased when the amount of oxygen supplied to the system is restricted by the feeble working of the respiratory mechanism, and when it is again restricted by the inadequate incentive arising from too feeble contact of changing ingredients entirely due to defective motions.

Whether or not the proposition be accepted that excess of albuminoids in some form is characteristic of the scrofulous series of diseases, this fact is undeniably recognized in practice, if not by formal statements. It is the *source of this condition* which most needs recognition. Ordinary prescriptions for the benefit of the scrofulous condition, however manifested, are quite certain to include what may properly be termed *reducing* agents, designed, both directly and indirectly, to aid in various ways the process of transforming irrelevant, superfluous, and obstructive ingredients of the vital organism to some stable and emergent form.

If further reasons are required why angular instead of circular forms of the column supervene under the physiological failures above detailed, it may be sufficient to note that the scrofulous condition is one of less vitality than exists in any other, and therefore more favorable to physical morbid changes from physical causes. The least, even temporary, increase at one point of morbid impulse determines the permanent fate of such locality.

The principal reasons for the very moderate and questionable success of the usual therapeutics of angular curvatures have now been shown in the statements above made of the nature of the physiological failures from which this affection arises and on which it depends. Therapeutic requirements have a natural basis in physiological defects. To substitute something else to maintain appearances is

unworthy of the profession. What is plainly required in these cases is restoration of the supporting power of muscles, restoration of the elastic and flexile functions of the column, through which alone *its* nutrition becomes possible, and, from first to last, restoration of the chemico-physic of the spine in connection with that of the whole organism by such means as render these permanent and not deceptive.

SOME POINTS IN THE PATHOLOGY AND TREATMENT OF DISEASE OF THE NASAL PHARYNX.*

BY JOHN N. MACKENZIE, M. D.,
BALTIMORE.

THAT the nasal pharynx is exquisitely sensitive to reflex-producing impressions is a fact which has been known for some time, and the older medical literature contains isolated examples of neurotic phenomena of various kinds emanating from pathological conditions of this region. These reflex neuroses of the nasal pharynx were, however, almost unknown except to special workers in this field until the publication of a brochure by Dr. Tornwaldt, of Dantzig,† in which prominent attention was drawn to the subject, and which invested the so-called bursa pharyngea with a pathological importance hitherto unrecognized and undescribed.

According to Tornwaldt, this bursa is a constant integral part of the rhinoscopic picture, and can always be recognized, sometimes as a furrow-shaped, sometimes as a blind *cul-de-sac*, directly in the middle line in the center of a curve drawn from the upper edge of the posterior nares to the atlas. This sac is the frequent seat of various pathological processes—hyperæmia, cystic formations, hypersecretion, and simple and purulent inflammation; and these often lead to reflex disturbances—such as asthma, cough, nasal polypi, various ear troubles, neuralgia, inflammatory conditions of the naso-bronchial tract, etc. He furthermore maintains the proposition that naso-pharyngeal catarrh has its starting point, in very many cases, in a localized pharyngeal bursitis, and that its cure is only possible after destruction of the bursa itself. His treatment, accordingly, consists in the obliteration of the bursa by means of nitrate of silver, following insufflations of this agent (one to ten) with the application of the fused solid directly to the sac. Tornwaldt's hasty enthusiasm carries him to the startling statement that, of 892 cases of naso-pharyngeal disease examined by him, 202 were primary affections of the pharyngeal bursa.

There are many objections which may be urged against the theory of Tornwaldt. In the first place, the very constancy and existence of the pharyngeal bursa is a subject of dispute among distinguished anatomists, and, according to my experience, the appearances described by Tornwaldt are by no means constant in the rhinoscopic image.

* Read before the American Laryngological Association at its eleventh annual congress.

† "Ueber die Bedeutung der Bursa Pharyngea," etc., Wiesbaden, 1885.

In the second place, when we consider the changes which take place in the pharyngeal vault during the different stages of inflammatory affections of the nasal pharynx—the frequent formation of cysts of varying shape and contents, the formation of depressions, furrows, and other conditions of the pharyngeal tonsil—it will be readily understood how easily mistakes in diagnosis may occur, or how difficult it often is to differentiate between well-recognized appearances in the pathological anatomy of post-nasal inflammation and the theoretical primary bursitis of Tornwaldt. That such errors have been indeed committed is evident from some of the literature on the subject.

It is highly improbable, nor are there any just grounds for belief, that an organ of such comparatively trifling anatomical and physiological importance should be vested with the peculiar privileges assigned to it by the followers of Tornwaldt. Since I became aware of Tornwaldt's researches I have searched in vain for what might be unequivocally termed a primary pharyngeal bursitis. When the bursa has been involved, it has been so invariably in connection with well-marked and far-advanced naso-pharyngeal disease. So that, from the standpoint of my own clinical experience, I am unable as yet to confirm the observations of Tornwaldt. Naso-pharyngeal disease is the most common affection of this climate, and the innuendo of Carroll Morgan—that the postulate of Tornwaldt regarding the great frequency of primary disease of the bursa, living, as he does, in a city of small population, has not been confirmed by the vast majority of specialists residing in large cities, and commanding an immense amount of clinical material—may possibly carry with it considerable force.*

While, then, Tornwaldt's observations must, for the present, be taken with a considerable amount of reservation, they have, at least, directed prominent attention to a field of naso-pharyngeal pathology of exceedingly great interest and importance. From them we may learn the lesson that, in order to dissipate certain inveterate naso-pharyngeal affections, we must not rely on astringents, alteratives, *et id omne genus*, but we must destroy the source of the discharge.

My own observations concerning this class of naso-pharyngeal neuroses may be briefly summed up in the following propositions:

1. The nasal pharynx is, in quite a large proportion of individuals, exceedingly sensitive to reflex-producing stimulation.

2. The areas chiefly involved are the posterior portions of the turbinated erectile tissue and various points along the upper and posterior portions of the naso-pharynx.

3. In consequence of this extreme sensitiveness, a local pathological process, which in many persons would give rise to no reflex neuro-vascular changes, may awaken a host of neurotic phenomena referable not only to the region primarily involved, but also to other and even remote organs of the body. These may include cough, asthma, and various neuralgic affections, or the local structural lesion may be the starting point of the various sympathetic affections of the respiratory tract.

4. That this class of naso-pharyngeal neuroses are explicable on the same general principles laid down in the article read before this association, May 29, 1886 (*vide* "Transactions," page 154 *et seq.*), and the pathology of the nasal and post-nasal affections is, therefore, one and the same.

5. That the treatment should be carried out according to the general directions laid down in the article just mentioned.

6. That when the morbid process originates in the pharyngeal tonsil, attention should not be directed to the bursa alone, but an endeavor should be made to extirpate the tonsil, as far as possible, in its entirety.

7. That, while a favorable prognosis can not be safely predicted by treatment of the bursa alone, extirpation of the pharyngeal tonsil often offers the most favorable prospect in long-standing cases of post-nasal inflammation.

PARAPLEGIA FROM A GUNSHOT WOUND OF THE SKULL OVER THE CORTICAL LEG CENTERS.

BY FREDERICK PETERSON, M. D.

THE following is the history of a unique case of simultaneous injury to both cortical leg centers, occurring in the practice of Dr. W. H. Heath, attending surgeon to the Sisters of Charity Hospital at Buffalo:

J. P., a male, aged fifty-seven, widower, born in America, served in the army during the late war, and was perfectly healthy up to that time. Since then his only illness has been of a rheumatic nature. He never had syphilis. During the early part of this year he became low-spirited and despondent from want of employment, but his was not a case of melancholia. On April 30, 1889, in a fit of desperation, he shot himself with a 32-caliber revolver. The remarkable feature of the shooting was the spot selected to receive the discharge. Directing the muzzle of the weapon against the top of his head, he shot vertically downward. The bullet entered exactly in the antero-posterior median line, something like an inch posterior to the bregma and about seven inches anterior to the occipital protuberance. It became impacted in the bone, splintering the inner table of the skull. Consciousness was apparently lost but for a few seconds. Almost immediately he felt a sensation "like an electric shock," and the lower extremities became completely helpless. He was taken at once to the Sisters' Hospital, and the disc of bone containing the impacted ball was removed. A number of loose particles of the inner table were also removed. The injury had lacerated the longitudinal sinus, so that the wound had to be plugged to check the hæmorrhage. The dura was slightly injured by spicules of bone, but the cerebral substance beneath it apparently escaped exposure or visible laceration. Dr. Herman Mynter first saw the patient, and sent him to the hospital. There was some retention of urine the first day from shock, and it was drawn off with a catheter; but there was no evidence of sphincter paralysis, and has been none since the shooting. The knee-jerks were enormously exaggerated from the first, and ankle clonus was very marked. Both legs were paralyzed. There has been no muscular atrophy, no anaesthesia, and no analgesia, and no cranial nerve was affected. Up to about the middle of July he was confined to his bed by the loss of voluntary control over his lower extremities, but before that some

* "Maryland Medical Journal," March 19, 1887.

improvement had taken place, and the amelioration of the paralysis had gradually advanced, apparently from above downward, so that on July 15th the thigh muscles had regained considerable power, and at the date of this writing (August 14th) he is walking about with a cane. Though there is a great gain of voluntary power, as shown in his ability to walk, yet the slightest touch upon the patellar tendon still produces a violent response, and the ankle clonus remains as before.

There has been no disturbance of his intelligence, nor at any time any tendency to convulsive seizure in the lower extremities.

An exact localization of the injury according to the rules of cranio-cerebral topography has not been made, but the statements given afford an approximate estimate of the relation of the bullet wound in the skull to the cerebral convolutions. In the first place, the ball entered precisely in the antero-posterior median line, depressing the inner table and lacerating the longitudinal sinus; hence, if any injury to the brain substance itself occurred, it must have been along the margins of the longitudinal fissure. The area for the lower extremity, as is well known, includes the upper portions of the anterior and posterior central convolutions, and the convolution around the upper extremity of the Rolandic fissure which, upon the median surface, is known as the paracentral lobule. The leg area extends, therefore, from the convexity over upon the median surface, and the margin of the hemisphere at this spot is the most prominent part of the area. The upper extremity of the Rolandic fissure does not pass over the margin, and is situated between 40 and 60 millimetres behind the bregma, according to Dana. From Dr. Heath's measurement we learn that the bullet entered one inch behind the bregma, or 25 millimetres, leaving a distance of 15 millimetres, or possibly more, between the anterior border of the bullet wound and the fissure of Rolando. The hole made by the ball itself could scarcely be less than 10 millimetres in diameter, and radiating from the wound were the depressed spicules of the inner table for probably 10 millimetres more, which would bring the farthest limit of bone injury to some 45 millimetres behind the bregma. As the leg center extends at least as far as 15 millimetres in front of the fissure, it is evident that the motor area lay to some degree below the injured portion of the skull. The pathological nature of this lesion is mysterious. Paraplegia followed immediately upon the presumed injury to the cortex of the motor centers for both lower extremities. Was it shock to the centers, or sudden compression, or sudden hæmorrhage? The longitudinal sinus was injured and bled freely from its upper wall, and a subdural hæmorrhage is also a possibility; the sinus being lacerated, blood might have flowed out and formed a large clot between the paracentral lobules. But any attempt at explanation must be purely speculative. The lesion was local from the symptoms developed, and from the fact that unconsciousness was merely momentary. If it had been irritative to the leg centers, would there not have been a tendency to spasm?

I do not know of any other case like this in medical literature, and it is to be hoped that Dr. Heath will keep it under observation for some time to come, that further data may be added to the valuable notes which he has furnished me.

AN UNFORTUNATE RESULT OF WHITEHEAD'S OPERATION FOR HÆMORRHOIDS.

By CHARLES B. KELSEY, M. D.

THE following case is that of a patient brought to me a few days since by Dr. Peckham:

A woman, aged thirty-five, was operated upon eight months since in one of our city hospitals for hæmorrhoids by Whitehead's method. "The operation had never healed."

On examination, the anus presents a circle of excoriated mucous membrane ending suddenly in healthy skin. The mucous membrane, which has been drawn outside of the rectum and united to healthy skin, is an inch broad for one half the circumference of the anus and half an inch broad for the remainder. In other words, the circular incision in the operation was entirely outside the margin of the anus, and the mucous membrane has been drawn down to it, changing a muco-cutaneous opening into one covered by mucous membrane.

The plan of treatment advised was to dissect this mucous membrane loose, cut it off, bring the skin up as near the verge of the anus as possible, and allow the wound to heal by granulation. A stricture of the anus would, of course, be the natural consequence, but one which I think could be managed and would be better than the extensive ulceration which is sure to follow the excoriation now begun.

It is needless to say that the patient's present condition is a very miserable one.

Creasote in Tuberculosis.—Professor Sommerbrodt, of Breslau, in two communications to the "Therapeutische Monatshefte," declares that an experience of over five thousand cases has proved to his own satisfaction that creasote is not merely a useful drug for the symptomatic treatment of tuberculosis, as has been conceded by others, but that it exerts a specific influence on the disease by the resistance it offers to the cultivation of tubercle bacilli. Dr. P. Guttman had by his experiments shown that tubercle bacilli could scarcely be cultivated in sterilized serum containing $\frac{1}{40000}$ of its volume of creasote, and the culture entirely failed when the solution was a little more concentrated. He concludes that if it were only possible to administer sufficient creasote for the blood to contain that drug for some time in the proportion of $\frac{1}{40000}$ of its own quantity, tubercle bacilli would probably cease to develop. This, he contends, is impossible, not only because the required quantity of creasote in the blood would be more than twenty grains, but because it would be impossible to determine what quantity of creasote would have to be administered to make twenty grains of it circulate in the blood. Sommerbrodt believes that it is possible to give the necessary quantity of creasote. He has been prescribing for some time to many hundreds of tuberculous patients capsules of creasote, each containing one grain of the drug. These capsules were taken, three the first day, and every succeeding day one more until the eighth day, after which the same quantity—from twenty to twenty-five grains per day—was continued for many months. The author says that it is impossible to presume that the twenty grains of creasote have already entirely passed out of the blood by the time the second or third dose of the drug is given, so that probably such an accumulation of creasote takes place in the tissues as to fulfill Dr. Guttman's postulate. He has, at any rate, had the most gratifying success with this medication, and his experience was that the more creasote a patient could bear in a day the greater was this success. The *modus operandi* of the creasote, Dr. Sommerbrodt says, has not yet been sufficiently cleared up. . . . He suggests, therefore, that serum from a man who has for some time taken more than twenty grains of creasote be used to cultivate tubercle bacilli, so as to find out if this acts differently from the serum of another person used for the same purpose.—*Lancet*.

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THE RELATIONS OF INFLAMED TONSILS TO RHEUMATISM.

A COMPARISON of the experience of various observers in regard to a given subject is always of value, especially when the personal equation is reduced to the minimum and the collated experience may be verified—without deductions for errors of observation—by any interested student. Of such a character was the discussion on "Tonsillitis, its Varieties and Relations to Rheumatism" that took place at the recent session of the Laryngological Section of the British Medical Association ("British Medical Journal," September 14, 1889).

Dr. C. W. Haig Brown classified tonsillar inflammations as simple and specific, the latter being subdivided into exanthematous (scarlatinal, morbillous, etc.) and diphtheritic, also as sporadic or epidemic and as follicular or interstitial. The follicular variety, he said, was most common, and the disease appeared when the air was saturated with moisture, in December and January, and again after hot, dry days with high humidity. Drain poisoning frequently caused the disease; and he referred to an institution in which the repair of improper drainage had reduced the percentage of amygdalitis to five and rheumatism to one, against twenty-one and four before the repairs were made. Of 119 educated persons with inflamed tonsils, 28 had rheumatoid pains with the attack, 38 had had previous attacks of rheumatism, and 10 had rheumatic parents, though they were free from this disease themselves. The aptitude of each disorder to recur, the sour-smelling perspiration, the pain in the back and limbs independent of arthritic pain, due to inflammation of the fibrous elements of the muscular fascia, the occurrence of cardiac murmurs in amygdalitis, as well as of endocarditis and pericarditis in rheumatism, lent a similarity to the diseases that outweighed their points of difference. He had not found that the salicylates, beyond their sedative power, influenced amygdalitis. This causative and clinical relationship led to the conclusion either that rheumatism as frequently found expression in the throat as in the fibrous or serous membranes, or that the inflamed tonsil, having received the rheumatic poison, became the medium of its transmission to the circulation, or that specific germs manifested their presence by inflammations of the tonsils and the fibrous and fibro-serous membranes. The last, by analogy with other diseases, seemed the most probable conclusion.

Dr. A. E. Garrod acknowledged the frequent association of sore throat and rheumatism, and reviewed the various observations that had referred to this association. He considered that the fact that many sufferers from rheumatism had amygdalitis was evidence that the arthritic pain accompanying the latter was rheumatic, and that the frequent association of pharyn-

gitis, amygdalitis, and rheumatism was evidence that the former was a manifestation of the rheumatic state, though it was, of course, conceded that there were many cases of sore throat that had no connection with rheumatism. When sore throat was the leading feature of the attack there was little tendency to affection of the endocardium or pericardium. No importance was attached to arguments based on the results of treatment.

Mr. Lennox Browne, who professed to have been the first to insist upon the ætiological, semeiological, and therapeutic analogy between tonsillar inflammations and the rheumatic diathesis, agreed with Sir Andrew Clarke that the sudden suppression of the generation and discharge of lymph-cells by the tonsil, the accumulation of effete matters in the crypts, and the filling up of lymph spaces with the products of bacterial life and evolutionary matter contaminated the blood and originated the rheumatic troubles. He believed that the action of sodium salicylate in inflammation of the tonsils proved the rheumatic character of the disease.

Dr. R. Hingston Fox referred to amygdalitis accompanying the exanthemata, distinguished between epidemic sore throat and simple tonsillar inflammation, and accepted Dr. Cheadle's seven phases of the rheumatic series: endocarditis, pericarditis, pleurisy, amygdalitis, exudative erythema, chorea, and subcutaneous nodules. In this series the lymphatic system, with which the tonsils, the ileo-cæcal glands, the serous cavities, and perhaps the joints were connected, was especially concerned. The association between these diseases was further shown by the facts that often one individual was attacked at different times by two or more of them, and that several members of one family might be attacked by them.

Other speakers expressed themselves to much the same purpose. While there is a consensus of opinion regarding the association of the diseases in question, and the importance of inquiring about rheumatic symptoms in amygdalitis is emphasized, yet the latter symptoms seem to be the result of a ptomaine poisoning. A more extensive study of both diseases is necessary to arrive at an exact conclusion regarding their pathological identity.

A GOVERNMENT REPORT ON THE SWINE DISEASES.

THE Commission of the United States Department of Agriculture, appointed in December, 1888, to investigate swine plague and hog cholera, has made a report, of which the chief conclusion is that these are distinct diseases, and not the same disorder, as has been maintained by Dr. F. S. Billings and some others. The Commission, composed of Dr. E. O. Shakespeare, of Philadelphia, chairman, and Dr. Meade Bolton and Dr. T. J. Burrill, journeyed far and wide and experimented diligently in order to settle the points in dispute. Their report is provisional and introductory to further and closer laboratory work.

One important observation made by the Commission is worthy of mention, as having an application to human infective diseases, since it recognizes a principle of cumulation in infection which explains what is called the alleged deficiencies of

vaccination and other protective agencies. To quote from the report briefly: "There is no known infectious disease, either of man or beast, capable of producing by one attack a degree of protection which is surely and absolutely effective against a second attack. Experience has abundantly shown that animals which are naturally or artificially protected can be *practically overwhelmed* by enormous doses of the germs of the disease and thus be made to suffer a recurrent attack, which may even be fatal." Thus it is that we not infrequently observe a second attack of small-pox in a person who, having "no fear of the disease," as it is often expressed by some such thoughtless person, so comports himself that a needless and wanton degree of exposure is incurred. That such an exposure does not engender the second attack oftener than is the case is surprising. In other words, the antidote being limited in its supply or potency, and the poison being practically unlimited in supply and fresh and virulent as to its potency, there ought to be nothing surprising, or, indeed, contrary to a rational expectation, in the recurrent attack as a result of an excessive exposure to the germs of infecting diseases. In such instances it is not the correct view to ascribe them to the "failure" of the protective agency applicable to each respective case: they are simply cases where the doses of poison have been so great as to overwhelm the protection. These views are not unfamiliar as matters of speculation and of analogy, but it has only been within the last few years that the work of the bacteriologist has brought the matter to the point of demonstration, that there is a quantitative, as well as a qualitative, element in germ-disease production. And the primary lesson to be deduced is that already suggested—that any unnecessary exposure to infectious disease is unwise.

THE ENTRANCE OF AIR INTO THE CIRCULATION.

UNTIL within recent years it has been an accepted fact that the entrance of air into the venous or arterial circulation was rapidly fatal; and many cases of sudden death during operations have been attributed to this cause. Recently Dr. Hobart A. Hare, of Philadelphia, in the "Therapeutic Gazette" for September, has reported a series of experiments on more than seventy dogs, in which he injected air in quantities varying from a minute bubble to forty cubic centimetres into the jugular vein or the carotid artery. Experiments with a cannula left tied in the proximal portion of the jugular vein did not show any suction of air. Death did not follow the injection of air into the vein; but, when it was injected into the artery, death occurred almost at once, if as large a quantity as twenty cubic centimetres was injected. The author remarks that, in operations, the collapse of the walls of vessels will generally prevent such an accident. The reported cases of sudden death are probably due to clot, and the evidence seems to Dr. Hare inconclusive that any of these deaths were due to air entering the vessels.

These experiments agree with those of Senn, whose work seems to have been overlooked by Dr. Hare to some extent.

In his exhaustive consideration of the subject of air embolism ("Transactions of the American Surgical Association," 1885), Dr. Senn found that the injection of twenty cubic centimetres of air into the carotid artery did not cause death, but that larger quantities were fatal, though less so than when thrown into the veins, the contractions of the left ventricle forcing the air into the venous circulation. The fatal issue in the latter condition appeared due to the mechanical overdistension of the right ventricle of the heart, with consequent paralysis, or to asphyxia consequent on pulmonary embolism. In his experiments he found that an elevation of the wounded part—as of the head in wounds involving the longitudinal sinus or the jugular vein—favored the entrance of air into the veins. In this paper quite a number of reported fatal cases from the entrance of air into the circulation were analyzed, and the evidence seemed sufficient that there was paralysis of the heart, and that there were air bubbles in that organ and in the blood-vessels.

Undoubtedly quite a number of the reported cases of sudden death from air embolism rest on insufficient foundation; in many no necropsy was made to verify the reported cause of death. It must also be remembered that even such moderate surgical interference as the introduction of an aspirator needle has caused death; and such traumatic shock has probably been the actual cause of death in many of the obscure supposed cases of air in the blood-vessels. In the last analysis of the work of these American experimentalists—substantiated as it is by European observers—it seems demonstrated that the accidental introduction of small quantities of air into the blood-vessels during an operation is not fraught with danger to the patient. Where dangerous symptoms are presented, Senn recommends aspiration of the right ventricle or auricle.

MINOR PARAGRAPHS.

THE MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

THE fifteenth annual meeting, which was held in Evansville, Indiana, on the 10th, 11th, and 12th of September, under the presidency of Dr. George J. Cook, of Indianapolis, was in every way a most successful one. The programme included nearly a hundred papers, many of which, however, were read only by title, as the time allotted for the meeting would not admit of the carrying out of the full programme. The attendance, which was large, included that of many representative men from Ohio, Kentucky, Tennessee, Missouri, Indiana, Illinois, and Pennsylvania; also visitors from some of the Eastern States. The association, which is a growing one, bids fair to rival the American Medical Association in membership. By its by-laws all questions of ethics and differences between members are referred without debate to the Judicial Council, whose decision is final. Thus nothing that might tend to produce unpleasant feelings can be brought before the association, whose time during its sessions is devoted entirely to scientific work. The social features of the Evansville meeting were of a most enjoyable character, and, like the arrangements for the meeting, reflected great credit upon the Committee of Arrangements, of which Dr. A. M. Owen, of Evansville, was chairman. The association will hold its next meeting in Louisville, under the presidency of Dr. J. M. Matthews, of that city.

THE NEW YORK ACADEMY OF MEDICINE.

THE exercises incident to the laying of the corner-stone of the Academy's new building, on Wednesday afternoon of this week, doubtless went far, as they ought to have gone, to further the general interest in matters calculated to improve the medical profession, and especially in the Academy's own prosperity, that has sprung up in New York within the last few years. On that occasion the profession itself was most creditably represented, and the participation of so popular an ex-President as Mr. Cleveland doubtless drew the thoughts of many influential laymen to the desirableness that the community should do everything in its power to raise the status, and thereby the efficiency of its medical men. In particular, Dr. Jacobi's address, which we publish in this issue, ought of itself to secure the objects in pursuit of which he spoke. It was straightforward, simple, and to the point, suggesting the good wine that needs no bush. If such a succession of presidents as Dr. Barker, Dr. Jacobi, and Dr. Loomis can be continued, the Academy will not be at a loss for suitable spokesmen whenever occasion arises for it to come before the public with appeals for the aid and encouragement that are its due.

HOW MUCH SHOULD A CITY PAY ITS HEALTH OFFICER?

THE Michigan State Board of Health has recently published a paper by its secretary, Dr. Henry B. Baker, in which he asks how much the average city or village can afford to pay its health officer. He answers the question by saying that statistics which can not be questioned prove that in those localities in Michigan where the recommendations of the State Board of Health are carried out about eighty per cent. of the deaths from diphtheria and scarlet fever are prevented by the thorough isolation of all infected persons and the thorough disinfection of all infected persons, things, and places. Statisticians, he adds, usually value a person in the prime of life as worth to the community about a thousand dollars. Dr. Baker thinks that in a village of fifteen hundred inhabitants a health officer can easily save the lives of two children and one grown person in each year, and he concludes that such a village can well afford to pay its health officer two thousand dollars for the prevention and restriction of scarlet fever, diphtheria, and typhoid fever, and save money by the transaction.

ST. JOHN'S GUILD.

THE report of the past season's work by the St. John's Guild shows that over 30,000 children and mothers were received on the floating hospital, and 1,500 sick children and others were treated at the Cedar Grove Seaside Hospital belonging to the Guild. The expenses exceeded the receipts by \$3,000.

LEPROSY IN THE SANDWICH ISLANDS.

ACCORDING to the "British Medical Journal," Dr. Lutze, who until recently was an assistant in Dr. Unna's clinic at Hamburg, has been invited by the Hawaiian Government to proceed to Honolulu, to remain there for some time to study leprosy in its habitats, and to investigate the effects of certain newly proposed methods of treatment.

ITEMS, ETC.

The Kings County Asylum.—Dr. Walter S. Fleming has been appointed medical superintendent of the Kings County Insane Asylum at Flatbush. He succeeds Dr. J. J. Shanks, re-

signed, being promoted from the position of assistant physician at the St. Johnland Branch Asylum.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 1, 1889:

DISEASES.	Week ending Sept. 24.		Week ending Oct. 1.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	63	16	55	11
Scarlet fever.....	24	4	34	3
Cerebro-spinal meningitis....	0	0	1	1
Measles.....	9	0	13	2
Diphtheria.....	55	15	55	14

The late Dr. Joseph Beale, of the navy, who died on September 23d, in his seventy-fifth year, was Surgeon-General of the Navy from 1873 to 1877, and had been on the retired list for twelve years. He was a native of Philadelphia, was educated there, and spent his last years there. He entered the navy as an assistant surgeon when he was twenty-three years old, and was on the active list for forty years. During the late war he participated in blockades and engagements at various points from Fort Hatteras to Mobile.

The Toledo Medical College.—Dr. F. B. Robinson, of Grand Rapids, Wisconsin, has been appointed to the chair of anatomy.

The New Haven Hospital.—By the wills of the late Philip Marett and of his daughter, Mrs. Gifford, the hospital will receive about \$200,000, and the New Haven Dispensary \$5,000.

Changes of Address.—Dr. Elizabeth Neely Bradley, to No. 32 East Forty-fifth Street; Dr. Louise Fiske Bryson, to No. 159 West Forty-eighth Street; Dr. E. L. H. McGinnis, to No. 35 West Thirty-eighth Street; Dr. Henry Maedonald, to No. 334 West Thirty-fifth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 22 to September 28, 1889:*
POPE, BENJAMIN F., Major and Surgeon. By direction of the Secretary of War, the leave of absence granted in S. O. No. 54, August 17, 1889, Department of Texas, is extended one month. Par. 6, S. O. 224, A. G. O., September 26, 1889.
LORING, LEONARD Y., Major and Surgeon. By direction of the Secretary of War, the station is changed from Fort Mojave, Arizona Territory, to Fort Wingate, New Mexico, and he will report for duty at the latter accordingly. Par. 7, S. O. 219, A. G. O., September 20, 1889.

CHAPIN, ALONZO R., Captain and Assistant Surgeon. With the approval of the Secretary of War, leave of absence for fourteen days is granted. Par. 10, S. O. 223, A. G. O., September 25, 1889.

BURTON, HENRY G., Captain and Assistant Surgeon, will, by direction of the Secretary of War, report in person, on the expiration of his present sick leave of absence, to the commanding officer, Davids Island, New York, for temporary duty at that station, and by letter to the superintendent of the recruiting service. Par. 3, S. O. 223, A. G. O., Washington, September 25, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending September 28, 1889:*

GORGAS, A. C., Medical Director. Detached from Examining Board and ordered to hospital, Philadelphia, Pa.

HORD, W. T., Medical Director. Detached from hospital, Philadelphia, Pa., and to wait orders.

BOGERT, E. S., Medical Inspector. Detached from New York Navy Yard and assigned to Examining Board.
 McMURTRIE, D., Surgeon. Detached from U. S. Steamer Vermont, and ordered to Navy Yard, New York.
 BABIN, H. J., Surgeon. Ordered to the Receiving Ship Vermont.
 HALL, C. H. II., Passed Assistant Surgeon. Resigned from the Naval Service, to take effect November 1, 1890, and resignation so accepted.

Society Meetings for the Coming Week:

MONDAY, *October 7th*: New York Academy of Sciences (Section in Biology); Medico-chirurgical Society of German Physicians; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society; Monmouth, N. J., County Medical Society (Freehold).

TUESDAY, *October 8th*: New York Medical Union (private); Medical Societies of the Counties of Albany (annual), Chenango (tri-annual), Greene (semi-annual—Cairo), Jefferson (quarterly—Watertown), Oneida (quarterly—Utica), Ontario (quarterly), Rensselaer, Schoharie (semi-annual), Tioga (Owego), and Wayne (semi-annual), N. Y.; Newark, N. J., and Trenton (private), N. J., Medical Associations; Bergen and Cumberland (semi-annual), N. J., County Medical Societies; Litchfield, Conn., County Medical Society (annual); Baltimore Gynaecological and Obstetrical Society.

WEDNESDAY, *October 9th*: American Rhinological Association (first day—Chicago); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medico-legal Society; Tri-State Medical Association (Port Jervis, N. Y.); Pittsfield, Mass., Medical Association (private); Franklin (quarterly—Greenfield), Hampshire (quarterly—Northampton), Middlesex South (Cambridge), and Plymouth (special), Mass., District Medical Societies; Philadelphia County Medical Society.

THURSDAY, *October 10th*: American Rhinological Association (second day); New York Laryngological Society; Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club; Pathological Society of Philadelphia.

FRIDAY, *October 11th*: American Rhinological Association (third day); New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); Medical Society of the Town of Saugerties (anniversary).

SATURDAY, *October 12th*: Obstetrical Society of Boston (private); Worcester, Mass., North District Medical Society.

Letters to the Editor.

A FORMULA FOR MEMORIZING THE CAUSES OF ABNORMAL INTRACARDIAC SOUNDS.

WASHINGTON, *September 10, 1889.*

To the Editor of the *New York Medical Journal*:

SIR: I propose the following formula for memorizing the causes of abnormal intracardiac sounds as one of the simplest yet proposed:

A, B, C,
 B, C, D.

Murmur heard loudest at Apex: With first sound = Backward flow, or mitral regurgitation. With second sound = Constricted orifice, or mitral stenosis.

Murmur heard loudest at Base: With first sound = Constriction of orifice, or aortic stenosis. With second sound = Downward flow, or aortic regurgitation.

C. V. N. CALLAN, M. D.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Fourth Annual Meeting, held in Washington, D. C., on Wednesday, Thursday, and Friday, September 18, 19, and 20, 1889.

The President, Dr. FRANCIS MINOT, of Boston, in the Chair.

The President's Inaugural Address dealt with the subject of the progress of medicine during the past fifty years. If such strides were made in the future as had characterized the last half decade, we had every reason to hope the time was not far distant when medicine would approximate the exact sciences. Bacteriology had revolutionized our notions of the causes and nature of many diseases and of their proper management. Much useless and pernicious medication had been abandoned, while the number of valuable remedies had been greatly increased. The possibility of prevention was advancing with the knowledge of the causes of disease, and hygiene had become an important branch of medical education. Even in tuberculosis, that wide-spread and most fatal of maladies, the results of prophylactic treatment, founded in part on the great discovery of Koch, were found to be most encouraging. It was not unreasonable to hope that this dread disease might in time become as amenable to control as small-pox. Medicine he considered almost as much indebted for its present position to chemistry and other branches of the physical sciences, and even to the mechanical arts, as it was to clinical observation and pathology. He felt he ought to touch also upon the great influence of the medical press in elevating the standard of the profession and in diffusing scientific knowledge to all parts of the world. This it did by the publication of original articles, clinical and other lectures, reports of interesting and instructive cases, and proceedings of societies and conventions. Thousands of practitioners unable to leave their homes were thus brought into communication with the highest authorities in medicine, and could avail themselves of the most recent advances of medical science. Finally must be recognized as one of the great advantages of medical conventions the privilege of becoming personally acquainted with the men from all parts of the country of whom they had heretofore known only by reputation or through their writings. In this way the profession was more closely drawn together, prejudices were laid aside, and harmony on the subject of medical ideas was promoted. The organization of the association he had the honor of addressing was peculiarly adapted to aid the progress of medical science. It represented no one section of the country, but included practitioners from all parts of the United States and Canada, whose experience, observation, knowledge, and ability were thus concentrated for comparison and mutual instruction. The president concluded his address with a respectful tribute to the memory of H. D. Schmidt, J. Call Dalton, R. P. Howard, and E. T. Bruen, deceased during the past year.

After a short session devoted to general business, the reading of papers was formally commenced.

The Early Stage of General Paralysis.—Dr. C. F. FOLSOM, of Boston, contributed this paper. It was compiled to express the author's opinion that there was perhaps a tendency to ignore, depreciate, or underestimate a train of insidious yet palpable symptoms, which, if more carefully observed, would assume importance as evidencing the initial brain lesion. He then went on to cite at length a number of cases in which some transient deviation from the normal mental equilibrium, antedating by a considerable period any pronounced symptoms, had led him to make a diagnosis of approaching general paralysis, which had been subsequently confirmed by the disease fully developing. These cases also illustrated that in the early stage of the disease the motor disturbances might be very slight or might altogether escape detection. That striking loss of muscular power or control generally regarded as a part of the disease was not always apparent until a later period. The mental symptoms were difficult to detect, but this could be more readily done in some vocations than others. For instance, the requirements for an orchestral leader being of so complex an order, the least failure was detected. In professional and business men a less degree of impairment would be recognizable than in mechanics. In routine employment, without much thought, a large degree of deterioration might exist unnoticed. In day-laborers an early diagnosis was impossible. The earliest signs of paralysis would probably be the slightest possible brain failure. If, for instance, a strong, healthy man at or near the prime of life, distinctly not of the nervous, neurotic, or neurasthenic type, showed some loss of interest in his affairs or an impaired facility in attending to them; if such a man became variously absent-minded, heedless, indifferent, negligent, apathetic, inconsiderate; if, while able to follow his routine duties, his ability to take up new work was, no matter how little, diminished; if he gave less willing mental attention and concentration, showed less power in conception, perception, reflection, or judgment; if there appeared lack of initiative, and exertion caused unwonted mental and physical fatigue; if the emotions were intensified or excited readily by trifling causes; if the sexual instinct could not be reasonably controlled and the finer feelings were even slightly blunted; if the person in question regarded with a placid apathy his own acts of indifference and irritability, and especially if at times he was able to see himself in his true light, and then suddenly failed to do so; if any symptom of cerebral vaso-motor disturbance became evident, however vague or variable—the foregoing might be regarded as suspicious indications, though there might be more or fewer in any given case. The group of symptoms given might seem very striking, but were really compatible with the performance of usual duties and required careful and prolonged observation of the patient and painstaking interrogation of his family and friends for their detection. They would be recognized perhaps as much from the peculiar quality of the mental impairment, difficult to describe, as from its degree. These often antedated, at least in time of their recognizability, any physical symptoms. The latter, when they appeared, might be so slight as to be unappreciable for a long time except as an unusual sense of fatigue and weariness. Commonly there was loss of flesh. There were always elements of uncertainty in the early diagnosis of general paralysis, for there existed few forms of mental disease in adult life that it might not simulate in obscure cases. It might be confounded with Bright's disease, epilepsy, hysteria, lead or mercurial poisoning, cerebral complications, and so forth. Its relation with syphilis was too frequent to be accidental, yet it could not be classed as properly a stage of that disease, nor was it benefited by specific treatment. He did not deem the prognosis so hopeless as it was generally considered. The present methods adopted in

treatment were really detrimental, and even when nothing but partial cure or marked amelioration could be hoped for such would be best achieved by methods which secured the patient absolute rest.

Dr. J. J. PUTNAM, of Boston, thought that it was a most essential thing to recognize the disease at the earliest possible moment. There seemed to be some mysterious connection between it and syphilis. He would like to ask whether Dr. Folsom had had any case in which chronic lead poisoning might have entered as a factor.

A case had come under his notice a few weeks ago in which a diagnosis of general paralysis had been made, and in which the symptoms, he was forced to admit, would readily allow of such conclusion. Still this patient was not so far gone as not to be able to appreciate his own condition, and had suggested the possibility that to the drinking of water which there was reason to think had been richly charged with lead his symptoms might be due. And it was also true that in this case there were local indications suggesting lead poisoning.

Dr. WILLIAM PEPPER, of Philadelphia, thought the disease due to slow degenerative changes in some group of cortical cells. Then any depressing cause might act in elaborating this morbid process. Still he believed there must be a period during the initial change when progress might be stopped and recovery be possible. He considered the ground taken in Dr. Folsom's paper as most important, and would suggest that he be asked to read again that portion of his paper which dealt with the appreciation of the earlier indications of general paralysis.

Dr. FOLSOM, in his reply, stated that he had never seen any cases of the pseudo-general paralysis of lead. As to cures, he regarded this as meaning a capability on the part of a patient to return for a time to his usual work. Speaking of the alleged syphilitic cases benefited by iodide of potassium, he could cite one in which the patient had been treated for every stage of syphilis. He had developed certain symptoms pointing to general paralysis. Under the iodide treatment, during which he had been given as much as a hundred grains a day, a perfect recovery had apparently been made, and the case might have been regarded as a cure from the speaker's test. Two months ago a circumstance had come under his notice which had indicated that the disease had made considerable progress, and the case would surely go on to terminal general paralysis.

Tetany.—Dr. JAMES STEWART, of Montreal, after dealing in his paper with the subject-matter from a general standpoint, illustrated his remarks by describing in detail the following case. The patient, a man, forty years of age, had suffered for eight years with regularly recurring attacks of tetany. He had served as a soldier during the American civil war, during which, and since, he had been a victim to chronic dysentery and malarial attacks. The first subjective symptom of the tetany had been diplopia, followed soon after by characteristic contractions of the flexors of the hands. Sometimes the flexors of the forearms and the adductors of the arms had become spastic. The muscles of the face had constantly suffered, while those of the lower extremities had been but rarely involved.

The galvanic irritability of the nerves had been found to be materially increased, as was the mechanical irritability of both nerve and muscle. The knee-jerk, which had been exaggerated during an attack, had been absent during the intervals. The quantity of urine excreted in the course of the attacks had been normal in amount, but had been found to contain both urea and indican in considerable excess. Herpetic eruptions with œdema of the hands and arms had not infrequently appeared as sequelæ of an unusually severe attack. The general symptoms presented by the patient, who had been under observation now for some years, were those of gradually increasing

dullness and apathy; he could not reply promptly to questions, and complained of a general numbness. There existed also some swelling of the lips and face. These symptoms closely resembled those of myxœdema, and the idea had forced itself upon the author that perhaps there existed a myxœdema grafted upon the tetany. His researches upon the subject of his paper had led him to the following conclusions: Tetany might be divided into three varieties:

1. Epidemic or "rheumatic" tetany, common in Europe but extremely rare in America, the course of which was acute and favorable.

2. Tetany from exhausting causes, such as lactation, diarrhœa, etc. Course also chronic and favorable.

3. Tetany from removal of the thyroid gland. The cases after such operations either were quickly fatal or became chronic and incurable.

4. A very fatal form of tetany produced by dilatation of the stomach.

From this enumeration infantile tetany was excluded, because, though it was doubtless true that tetany might occur in childhood, that which was frequently so designated was in reality not the disease at all. When the thyroid gland was removed from animals for the purposes of experimentation, a condition supervened very similar to the typical tetany in the human subject. Of the many forms of muscular contractions seen in man, in none, excepting perhaps in chorea, would be found such marked increase of the electric irritability of the nerves and muscles.

The investigations by pathologists seemed to throw no light toward a possible ætiology for the disease, and no morbid anatomical changes which could in any way be deemed characteristic have been described, but it appeared that tetany following removal of the thyroid gland was due directly to such loss, and that the gland itself influenced the nutrition of the nervous system. Possibly it might be accepted as a general proposition that impoverishment of the nerve centers acted as a prime factor in the production of tetany.

Tetany and a New Theory of its Pathology.—In this paper the author, Dr. JOHN T. CARPENTER, of Pottsville, Pa., said that tetany might best be defined as a nervous disorder, accompanied by spasms of an intermittent character, extending from the extremities to the muscles of the jaws. These spasms might, during the intermissions, be reproduced at will by compressing the affected parts, either in the direction of the principal nerve trunks or over their blood-vessels, thus impeding the circulation. But this definition failed to reach the underlying pathology of the disorder; indeed, later observers had taken the ground that there is no definite lesion connected with the disease. This might be true—no definite lesion, perhaps, but still a definite cause. Was tetany a special disease, or the sequel of precedent phenomena? Was it an independent morbid entity, or the consequence of some other diseased condition of the system? These questions might be answered by an analysis of the conditions and circumstances under which tetany had been observed, which had been many and varied. Diarrhœa had frequently been a condition; so also had constipation. The post-*puerperal* state and lactation in women had been frequently noted. But, again, children and adult males were also subjects of tetany. Typhoid fever and phthisis had furnished a number of cases. So had exudative disease of the pharynx. Could we make any generalization among all these varying conditions? Could we make clearly evident any fundamental peculiarity among all these different morbid states? He believed this could be done. Such a study had led him to the conclusion that the well-known general condition of systemic infection called sepsis might be safely asserted and surely proved to underlie or accompany every an-

tecedent disease that had been observed to be connected with tetany. From these deductions might be formulated the axiom that tetany, as a general rule, follows upon such diseased conditions of the system as are observed to produce morbid discharges from mucous surfaces whose absorption is known to cause symptoms in remote parts of the body due to the circulation of septic poison. Taking first the post-*puerperal* state, modern obstetric physicians believed that sepsis was usual at this period, and to its influence they justly ascribed the so-called "milk fever," the *puerperal* inflammations, and many other of the disorders of *puerperal* women. If, then, a septic condition could exist sufficient to cause these disorders, it was not difficult to see that such might readily account for the appearance of tetany in the post-*puerperal*. He then went on to consider *seriatim*, in this connection, diarrhœa, constipation, and phthisis, his summing up being that, in all recorded observations of morbid processes antecedent to tetany, a probable sepsis might be inferred; and no other cause, common to them all, has so far been discovered. To this fundamental peculiarity, therefore, must be assigned the causation of the final result, as a disorder consequent thereupon.

Dr. F. P. KINNICUT, of New York, said that he had seen two cases of intermittent tetany from dilatation of the stomach in pyloric stricture. The cases had both been cancerous and very favorable to the absorption of poisonous material.

Dr. A. JACOBI, of New York, took exception to the theory of Dr. Carpenter. There might be cases in which sepsis might have some influence; but when the attack was temporary the immediate influences which produced it were temporary too. He looked for the proximate causes still in nerve irritation. The disease was not, as had been stated, frequent in Europe. When it occurred it was usually limited to attacks of localized, circumscribed convulsions. He remembered, during thirty-six years of practice, to have seen only five cases, and of these only one was that of an adult.

Thrombosis of the Cerebral Sinuses and Veins.—Dr. A. B. BALL, of New York, read a paper on this subject, and in the course of an exhaustive and elaborate survey stated that the conditions which underlay thrombi of the cerebral sinuses and veins were essentially the same as those which determined thrombi elsewhere in the venous circulation. These conditions were still very imperfectly understood. As to the influence of the blood when at complete rest in inducing the thrombotic process, it was still a matter of dispute whether blood stasis was ever by itself the initial cause. There was a theory promulgated by Eberth that white thrombi were formed mainly by agglomeration of blood plates, differing in this respect from ordinary blood coagula. Whether we took this view or that advocated by Weigert, Walshe, and others, that thrombosis and coagulation were essentially the same process, there was no doubt that slowing of the circulation must be regarded as of great importance. If the initial step were acknowledged as being an adherence of the formed elements of the blood to the vessel walls, obviously such adhesion was more likely to occur with a retarded blood-current. In situations where an active circulation was maintained—as in the heart, in the aorta, and even in some aneurysms—excessively roughened surfaces might be present without being covered by a thrombotic deposit, such slight adhesion of the formed elements of the blood to the vessel wall as might occur from time to time being swept away by the blood-current, and in absence of thrombosis these were readily disposed of in the general circulation. The speaker then considered the part played by vessel lesions and morbid blood changes as factors in thrombosis. He concluded by giving an interesting history of cases of artificial occlusion of the cerebral sinuses in dogs. If dogs were the same as men, then the very extensive occlusion

which could be tolerated before a characteristic train of symptoms appeared and death supervened, as demonstrated during the series of experiments made by Ferrari, threw grave doubts on the reported cases in which fatal cerebral lesions had been assumed to depend upon a comparatively limited obstruction of cerebral sinuses.

In the course of the remarks which followed the reading of this paper Dr. JACOBI observed that among the causes of thrombosis he thought he might enumerate a disproportion between the white and red corpuscles; by this he did not mean a condition of leucocythæmia. Then the absence or relative absence of muscular tissue in the walls of the veins, and it was here that ergot came in as a remedy. Again, absence of water in the blood or too little water. Patients in certain conditions were not given water enough, and it would be found that such could be relieved by injection of water or salt water. Then, again, it was always good treatment to stimulate the heart in every disease which would last long or had a tendency toward producing heart failure. He believed we did not make proper use of heart stimulants, and usually waited too long before we began with them. Any of the four causes he had touched upon might produce thrombosis.

Effusion of Chyle and Chyle-like Fluids into the Serous Cavities.—Dr. SAMUEL BUSEY, of Washington, read a paper on this subject, in which he considered the morbid processes possibly concerned in effusion of chyle into the pleural cavity, of chylous and oily fluids into the peritoneal cavity, and of chyle-like and fatty fluids into the tunica vaginalis testis. He pointed out the infrequency of chylothorax and chylous ascites and the increase in cases of lymphocele and elephantoid diseases in this country. Chylothorax he described as mainly the result of injury, and chylous ascites as caused by rupture of chyle-conveying vessels, produced by pressure of abdominal and thoracic tumors, cicatrices, inflammatory adhesions, cardiac affections, diseases of the coats of the thoracic duct, receptaculum chyli and lacteals, and other conditions impeding the movement of chyle or its exit into the left subclavian vein. Oily ascites was generally associated with tuberculous and cancerous affections. Lymphocele was the result of gland obstruction, caused by embolism with the ova of filariæ. A diagnosis of these conditions he said was only rendered positive by examination of the fluids, and the prognosis was unfavorable in cases of effusion into the pleural and peritoneal cavities, but favorable in lymphocele, in which latter the treatment would be surgical, in the former expectant.

Substitutes for Opium in Chronic Diseases.—Dr. J. F. A. ADAMS, of Pittsfield, Mass., contributed this paper, in which he began by stating that there were times when the dangers and disadvantages of this most brilliant of drugs seemed wholly out of proportion to its benefits. A growing dissatisfaction with opium was the motive of his paper. The disadvantages of opium consisted in the fact (1) that in an overdose it was an active poison. (2) In an ordinary dose its benefits might be largely offset by various functional derangements. (3) Its use involved the danger of the opium habit. The usual reason for giving opium was the belief that no other remedy was capable of accomplishing the result desired. Recent discoveries had, however, done much to lessen our dependence upon it. The avidity with which the new analgesics were seized upon by the medical profession and their powers tested was an indication of the deep-seated antipathy to opium, and the desire to be emancipated from its rule. He then went on to define in detail the advantages and disadvantages of the following drugs when employed as analgesics, in their order of value: antipyrine, acetanilide, and phenacetine. Other analgesics of great value were quinine in neuralgia, especially the malarial variety, cocaine,

used hypodermically, galvanism, and massage. The hypnotics which might with advantage supersede opium were paraldehyde, hydrate of amyl, and sulphonal. For chronic diarrhœa he had almost discarded the use of opium, preferring to treat all such cases antiseptically. To this end he was now in the habit of using sodium salicylate and salol, and both these had proved most satisfactory. Naphthalin had been highly recommended for the same disorder. In recapitulation, he said that we now had remedies at command which might be used instead of opium in all of the chronic affections in which this remedy was formerly our main dependence.

(To be concluded.)

AMERICAN GYNÆCOLOGICAL SOCIETY.

Fourteenth Annual Meeting, held in Boston, September 17, 18, and 19, 1889.

The President, Dr. H. P. C. WILSON, of Baltimore, in the Chair.

(Concluded from page 361.)

A Case of Abdominal Lipoma simulating Ovarian Tumor.

—Dr. A. REEVES JACKSON, of Chicago, read a paper with this title. One such case had been seen by the author of the paper, an erroneous diagnosis of ovarian tumor having been made. The abdomen had been opened and the tumor found to consist of large masses of fat springing from the mesentery and other portions of the peritonæum. It had not been considered feasible to remove them; the incision had been closed, and the patient had seemed no worse after recovering from the operation. Péan had reported two similar cases, which were embodied in the paper. The diagnosis of ovarian tumor had been made in both. Sir Spencer Wells had also reported a case, the operation for which had resulted fatally. Byford, of Chicago, had operated successfully on one case, and Homans, of Boston, had had two fatal cases. Thus the diagnosis in all cases had been faulty, and all but two of the operations had resulted fatally. The conclusion was that such tumors were exceedingly rare, and that operations in which their removal was effected almost always resulted fatally.

Dr. S. C. GORDON, of Portland, Me., reported one case which had occurred in a male patient. He had been unable to remove it. The patient had recovered from the operation, but had died a short time afterward.

Dr. W. C. GOODELL, of Philadelphia, thought such tumors usually coexisted with large masses of fat in the abdominal parietes. He had seen one case. He differed with the diagnosis of ovarian tumor which an associate had made. The tumor had been a mass of fat attached to the omentum, and had not been removable. The patient had died soon afterward.

Dr. E. C. GEHRUNG, of St. Louis, had seen a case which he had considered inoperable. The patient had lived seven years after his opinion had been given, the tumor reaching enormous dimensions. An operation had been performed, which had quickly proved fatal. The tumor had been a vast mass of fat, weighing sixty-eight pounds.

Dr. FORDYCE BARKER had seen one case in which the patient had died on the third day after the operation.

Dr. G. J. ENGELMANN doubted whether all the cases reported were lipomata, to which the discussion should have been limited.

The president, Dr. H. P. C. WILSON, of Baltimore, Md., delivered the annual address, which was largely historical and reminiscential. He proposed as a question for discussion the propriety of laparotomy during or just before menstruation. Storer had recommended the first week after the conclusion of

menstruation as the most desirable time for such operations, but the speaker believed it was better to operate during the uterine *flood* than during its *ebb*, the flow from the uterus perhaps tending to prevent inflammation. He had been driven to this opinion by certain experiences in which he had been compelled to act, and had never seen occasion to regret such action.

Dr. GOODELL had performed ovariectomy six times while menstruation had been in progress, and thought that such a time was not inopportune. He would prefer, however, to decline to perform hysterectomy or myomectomy during menstruation.

Dr. A. P. DUDLEY had frequently observed that a discharge of blood from the uterus was to be expected within a few days after the performance of laparotomy, and it had occurred to him, in view of this fact, that the normal flow of menstruation should not contra-indicate an operation. He had operated several times during the past year while menstruation had been in progress, and did not think he would refuse to do hysterectomy at such a time.

Dr. R. BATTEY, of Rome, Ga., said it was a historical fact that the original Battey's operation had been performed while menstruation had been in progress. Metrostaxis might be expected, in almost all cases, two or three days after laparotomy had been performed.

Dr. KOLLOCK, of Cheraw, S. C., had operated twice during menstruation, and saw no objection to operating at such a time.

Dr. H. C. COE believed that some women would bear an operation performed during menstruation favorably, and others would not. The latter class would include those who were very susceptible to pelvic inflammation.

Dr. P. F. MUNDÉ had not observed that hæmorrhage was more profuse when laparotomy was performed during menstruation than when it was performed at other times. He considered that the question of menstruation was insignificant in deciding as to the propriety of an operation, but extra care should be used to prevent sepsis in case an operation were done at such a time, an absorbent pad being applied to the vulva. He would not advise the removal of a myomatous uterus during menstruation.

Dr. A. J. C. SKENE, of Brooklyn, N. Y., thought the experiences narrated proved nothing as to the propriety or non-propriety of operating while menstruation was in progress. In general, surgical operations should be avoided during the performance of any function. In case of a patient who suffered with dysmenorrhœa, he would prefer to operate before the menstrual period to economize her vital force.

An Experience with Sloughing Intra-uterine Fibroids.

—Dr. ELY VAN DE WARKER, of Syracuse, read a paper with this title. The paper was based upon the following cases:

CASE I.—Sloughing intra-uterine fibroid in a subject of extreme obesity. Operation of total removal abandoned, and the sloughing layers of the tumor removed with the curette. Recovery, and death some years subsequent to operation, with symptoms of malignant uterine disease.

CASE II.—The patient had been forty-six years of age; had had one child; history of repeated abortions. Extreme blood loss and high temperature, with œdema of extremities; cervix very resistant. Rapid dilatation and removal of fibroid in sloughing condition. Recovery, and death in a year after from chronic nephritis.

CASE III.—Patient aged thirty, sterile; fibroid extruded entirely from the uterine cavity and pendulous within the cavity of the cervix, with low insertion of pedicle. Tumor in a sloughing condition; hæmorrhage and pyrexia. Operation and recovery.

CASE IV.—Patient, aged forty, had had three children. Rapid

disappearance of a pelvic tumor, attended by severe flooding, and demonstrating the presence of an intra-uterine fibroid in a sloughing condition two weeks subsequently. Extreme high temperature and exhaustion. Operation and recovery, complicated with hystero-tetanus without trismus, preceding the operation. The neurotic symptoms relieved by bromide of potassium and asafoetida.

CASE V.—Patient, aged fifty-one, had had several children. Long-continued error in diagnosis, the uterine symptoms being ascribed to cancer for fourteen years. Blood loss continued with more or less activity for that period. Sloughing intra-uterine fibroid demonstrated. Pyrexia for about four weeks; exhaustion extreme; blood loss so excessive that mucous membranes were blanched. Operation and death from shock.

The following summary was based upon the facts connected with this group:

1. The use of the curette to remove the sloughing periphery of an intra-uterine fibroid when non-removable from any complication, as in Case I from excessive obesity, or in cases of extreme exhaustion that rendered extirpation extra hazardous.

2. That the process of sloughing began at the outer layers of the mass and extended layer by layer into its deeper structure.

3. Rapid dilatation of the cervical canal afforded ample space through the parts for the manipulations of removal; and that sponge tents and other slow methods of dilatation were unnecessary (Case IV).

4. That fibroids, formerly intra-uterine, when extended from the uterus and pendulous in the cavity of the cervix with its pedicle therein attached, were rarely found in a sloughing condition; and that Case III was an exception to this rule.

5. That a form of hystero-tetanus, without trismus, might follow either certain forms of blood-poisoning or uterine lesion (Case IV). Within the experience of the author this condition, only met with in the puerperal state, was attended with septicæmia.

6. That blanched mucous membranes, in excessive and long-continued blood-loss due to intra-uterine fibroids, afforded a certain indication that the limits of safety had been reached in operative treatment of sloughing fibroids, and that a doubtful prognosis must be given (Case V).

7. That septicæmia with long-continued pyrexia was necessarily a fatal condition when due to a sloughing fibroid, unless relieved by the removal of the offending mass; that removal, wholly or in part, was a life-saving operation and was imperative; that the operation was comparatively easy and attended with but little danger, except in cases of blanched mucous membranes.

Dr. M. D. MANN narrated one successful and three fatal cases of sloughing fibroid which he had treated. They showed the danger of the condition and the danger and difficulty of operative measures for its relief.

Dr. BATTEY had seen one case in which sloughing of a fibroid tumor had followed removal of the ovaries. Such a result might also follow the use of ergot.

Dr. WYLIE recommended the free application of antiseptics to a tumor several hours before an operation was undertaken. He objected to the use of a vaginal or uterine tampon after operation, as it might interfere with drainage, which was of fundamental importance. Atrophied fibroid tumors in old women would sometimes present symptoms resembling those which accompanied sloughing fibroids.

Dr. GOODELL thought that operations for the removal of sloughing fibroids should not be unduly prolonged. It was better to do two or several operations, if necessary. A tumor could sometimes be removed with facility by using a guarded obstetric crotchet.

Dr. GORDON attributed the sloughing in the class of tumors under discussion to an imperfect vascular and nerve supply.

Dr. VAN DE WARKER, in concluding, believed that the sloughing was caused by a special mechanism in which pressure was the principal element. The nerves and vessels were affected secondarily. The antiseptic applications advised by Dr. Wylie seemed to him useless, as they could hardly penetrate in a few hours beyond the sloughing zone.

Death from Visceral Lesions following Ovariectomy.—

Dr. H. C. COE, of New York, read a paper thus entitled. It was a gratifying fact that as ovariectomy became more thoroughly understood and facility in operations increased, the death-rate was greatly lowered. A great extension of the limits of abdominal surgery had resulted, and conditions which were once considered incurable were now within the pale of legitimate surgery. Unfortunately, reliable records of laparotomy cases which had proved fatal and were followed by autopsy were very scanty. He had been able to collect fifty cases in which the records were satisfactorily complete. These formed the basis of his investigations.

Cardiac lesions were first to be considered, the most frequent being fatty degeneration, dilatation, and mitral disease. Heart failure might not occur until several days after the performance of laparotomy. Serious cardiac complications might arise from the pressure of a distended stomach or intestines, and this was most frequently seen in those cases in which opium was used for the relief of pain. Cardiac irritation reflex in character might also arise, owing to disturbance of the abdominal sympathetic plexus. Lung complications had sometimes been found at autopsies when their existence had not been suspected during life. Dyspnoea existing before an operation might be caused by an overlooked pleurisy rather than by the pressure of a tumor. After operations there might be reflex irritation of the lungs, bronchitis, pneumonia, or œdema, the latter frequently resulting just before death. Renal complications were also frequently overlooked during life. There might be albuminuria due to the pressure of a tumor, and pus in the urine with vesical or renal trouble or both. After an operation there might develop hydronephrosis, acute pyelitis, and interstitial nephritis.

Acute or chronic gastro-intestinal disease might precede or follow laparotomy. The stomach might be irritable from venous stasis. It often suffered acute dilatation after an operation. Gastro-intestinal inflammation might cause diarrhoea which would speedily tend to a fatal issue. Intestinal stricture with its serious resulting conditions might follow peritoneal inflammation with adhesive bands, and the latter were much more common than was usually supposed. The spleen, the lymphatics, the liver, etc., might be diseased and complicate ovariectomy in cases in which a favorable prognosis had been ventured. All of this taught that sepsis was not the only ill to be anticipated in abdominal surgery, and that a more careful and thorough interrogation of the abdominal and thoracic viscera than was usually accorded was necessary if one would eliminate an important factor in causing a fatal termination to ovariectomy.

Renal Diseases caused by Disease of the Pelvic Viscera.

—Dr. G. J. ENGELMANN, of St. Louis, Mo., read a paper with this title. Disease of the kidneys might result from urethral disorder, pressure upon the ureters or kidneys, perverted nervous influence, etc., the influence of the nervous system in causing the disease being especially important. Disease of the bladder which was due to the pressure of a tumor was usually discovered, but the diseased conditions of the ureter resulting from pressure were more obscure and might not be discovered

until fatal mischief had been wrought, the sequence of evils beginning with ureteritis and ending with contracted kidney. Disease of this character usually made slow and insidious progress, backache being one of its prominent symptoms. That such conditions might occur was readily suggested by the exposed course of the ureter from the kidney through the pelvis. It was exposed to pressure everywhere—from tumors, from inflammatory exudate, from the hard surface of the brim of the pelvis. In malignant disease of the pelvic organs the ureters and kidneys were very frequently involved. This might not be apparent until an autopsy was made. Cardiac complications were rare even though the kidneys might be in a state of degeneration. Pressure from ovarian tumors was less likely to cause renal and ureteral complications than that from hard and unyielding fibroids. Active interference should begin as soon as there was the least suspicion of pressure upon the ureters. Pain in disease of the kidneys might be obscured by that which was due to coexisting pelvic disease. The pain sometimes seemed to dart along the course of the ureter from the kidney to the bladder. There might be associated with it vesical tenesmus, frequent and scanty micturition, burning and lancinating pains in the back, with lassitude, etc. The pain might extend toward the liver or across the small of the back, and it might continue for hours or days with scarcely an intermission. All these phenomena might appear suddenly, as after a fall, an attack of cystitis or cellulitis. Œdema of the extremities with uræmia might quickly follow. Examination of the urine at such a time would reveal the presence of pus, phosphates, hyaline, granular, and epithelial casts. It was fortunate if the disease were limited to one ureter and kidney. The prognosis was serious unless the case were seen before the disease had made much headway. If it were possible, the cause of pressure—be it tumor, or whatever else—should be removed. Ergot internally might be of service, also the use of heat, iodine externally, and the galvanic current. Catheterization of the ureter by opening its lumen and possibly draining off the pus from the kidney might be of service.

Dr. W. M. POLK coincided with the statements which had been made that in pelvic disease there were other organs which should also be interrogated before deciding upon laparotomy. Women in fashionable life who indulged in the pleasures of society and the pleasures of the table seemed quite prone to complications of kidney disease with pelvic disease. Such women bore ether and the shock of operations badly. After operations upon such cases there were also intestinal complications frequently, and excretion in general was interfered with or suspended.

Dr. HOWARD KELLY wished to emphasize the propositions laid down by Dr. Engelmann. Reports of cases in which pelvic and renal disease coexisted were common enough. It was easy to understand that such complications might exist, bearing in mind the anatomical relations of the ureter and kidney. Tuberculosis of the bladder, cancer of the uterus, bladder, and vagina, retro-peritoneal sarcoma, peritoneal adhesions, and vesico-vaginal fistula might all complicate or be associated with disease of the ureter and kidney. The ureter was often encroached upon by the gravid uterus in the latter months of pregnancy, and inflammation of its vesical extremity was a very common condition. Palpation of the ureter was readily performed, and would clear up many uncertainties. Catheterization could also be performed if indicated.

Dr. B. B. BROWN, of Baltimore, had seen a case of hydatids of the ureter in which a diagnosis had been made after dilating the urethra and exploring the bladder and ureter, which had been dilated by the tumor, with the finger.

Dr. COE, in concluding, recalled several cases in which hy-

dronephrosis had been found after death which had been unsuspected when laparotomy had been performed. The operation of kolpo-uretero-cystotomy which had been recommended for certain cases seemed to him an uncalled-for operation, as it was impossible to say that it would be efficient in any given case. He had seen a case in which it had been performed, the pelvis of the kidney being washed out while there were several abscesses in the cortex which could not be reached by the irrigation.

Dr. ENGELMANN, in concluding, reiterated the necessity of careful investigation to ascertain the presence or absence of renal disease in connection with disease of the pelvic organs. The subject was one which would broaden the field of gynecological work.

Pelvic Congestion versus Pelvic Inflammation.—Dr. S. C. GORDON read a paper on this subject. Of all conditions which had given rise to dispute and misunderstanding among surgeons, none was more prominent than pelvic inflammation. The term chronic pelvic inflammation which was used by many writers was a misnomer, for while the condition indicated by the term presented some of the phenomena of inflammation, it was not an inflammation in the proper sense of the term, and this had long since been shown by Peaslee and others. Acute pelvic inflammation might recur an indefinite number of times, the result being resolution, suppuration, or an indurated mass, and it was the latter which was so often termed chronic inflammation. With the induration coexisted venous congestion. This implied hypernutrition and eventually hyperplasia. The pelvic tissues and organs in general might be involved, and patients so affected seemed especially susceptible to renewed attacks of acute inflammation. It had appeared to him that such a condition existing in cases where operations upon the cervix uteri were required was not benefited by the preparatory treatment advised by Emmet as a preliminary to such operations. It seemed more logical to him, besides more economical of time and money to the patient, to operate upon such patients at once, relieve the passive congestion by free bleeding during the operation, and expect resolution to follow. This plan had been adopted by him, operations upon the cervix being preceded by thorough curetting of the uterine mucous membrane, and the method had been entirely satisfactory. It was unnecessary to say that such operations should always be performed under anæsthesia. Indeed, so fearful was he of exciting pelvic inflammation that he preferred to use an anæsthetic if only an intra-uterine application were to be made.

Dr. T. A. EMMET stated that he did not advocate preparatory treatment, except while an acute inflammation existed. As to pelvic tenderness, that could be excited by pressure of the finger at any time after pelvic peritonitis had existed and the peritonæum had become scarred and folded. It was a fundamental fact that inflammation of the pelvic connective tissue meant destruction of that tissue; its vessels were deprived of support, venous congestion or phlebitis and lymphangitis resulting, and the proximity of the peritonæum must in most cases also necessitate peritonitis. This process might result in resolution or abscess, and it was frequently followed by peritoneal scars and bands. The venous congestion was frequently relieved by steady pressure from a vaginal tampon of cotton-wool.

Dr. A. P. JOHNSTONE, of Danville, Ky., believed that the peritoneal bands and adhesions which were of such frequent occurrence were in many instances the primary cause of the susceptibility to pelvic inflammation which was common to so many women. The tension and pressure of these adventitious products prevented the growth of epithelium in the tubes and uterus. The lymphoid tissue of the endometrium normally developed into epithelium, but faulty conditions, including the one

which had been mentioned, caused the development of connective tissue instead of epithelium.

The Surgical Treatment of Posterior Displacement of the Uterus.—Dr. W. M. POLK read a paper with this title. Backward displacements of the uterus could not always be relieved by pessaries; hence arose the necessity for other means of treatment. Brandt's method of treating such conditions by massage would not be considered, as the reader had not sufficient knowledge or experience of it to discuss it intelligently. There remained treatment by measures purely surgical. Such measures consisted in the operation from the outside, or Alexander's operation, and, on the other hand, the various operations which necessitated laparotomy. Matured experience had led the reader to prefer Alexander's operation in all cases in which it could properly be done, supplementing it by the use of an intra-uterine stem pessary in certain cases. Should prolapse of the ovaries coexist with the uterine displacement, this condition would likewise be relieved simultaneously with the other. Procidentia uteri could also be relieved by this operation, though there might be a field for hysterectomy in severe cases. Repair of the pelvic floor should be accomplished in addition to Alexander's operation in all cases in which it was indicated. If the round ligaments had undergone fatty degeneration, it was obvious that laparotomy must be done and an intra-abdominal operation performed. The same treatment would be required if the retroflexed uterine horns were firmly adherent to the pelvis, or if the tubes and ovaries were diseased. Many operations had been proposed for shortening the round ligaments within the abdomen. All of them implied either the use of existing supports or the making of new ones. Of those in which the latter procedure was adopted, ventro-fixation seemed the most useful, though it had certain objections which were obvious. Of those in which existing supports were utilized, Tait's and Imlach's consisted mainly in reefing the broad ligaments, the tubes and ovaries having first been removed. Wylie's consisted in doubling the round ligament upon itself, stitching the folded portions together, and the reader's consisted in drawing the ligaments together in front of the uterus and stitching them together in that position.

Dr. W. H. BAKER, of Boston, agreed with the reader of the paper that Alexander's operation must always be a safer procedure than any in which the abdomen was to be opened, and hence was always to be preferred whenever it was feasible. If the abdomen were to be opened, he preferred ventro-fixation as an operative procedure. An objection to it was that the attachment of the uterus to the abdominal wall had given way in some instances and necessitated a secondary operation.

Dr. HOWARD KELLY preferred ventro-fixation to the attachment of the uterus to the anterior segment of the pelvis, as advocated by Zweifel, as the latter procedure brought the uterus into a faulty position, and would be likely to produce vascular derangement. His own results with ventro-fixation had not always been as desirable as could be wished, but they had improved since he had adopted the plan of casting his sutures around the utero-ovarian ligaments from behind forward. He had tried Schücking's method of ventro-fixation with good results in two cases.

The Relation of Uterine Retro-deviation to Pregnancy.—The secretary read a paper by Dr. A. MARTIN, of Berlin. It was an admitted fact that pregnancy was impossible at least in some cases in which retroflexion of the uterus existed. The paper which was presented was based upon the experience of the author, which included seventy-nine cases seen in hospital practice and forty-two in private practice. In all of these cases there were typical symptoms which resulted from the displacement. Two questions must be considered in the discussion of

the given subject: 1. Was retro-deviation a bar to pregnancy? 2. Was retro-deviation during pregnancy as serious a condition as had been commonly supposed?

The symptoms which had presented themselves in many of the author's cases had been hæmorrhage, uterine catarrh, tubal disorder, and peritonitis. In other cases no such disturbing symptoms had arisen, and pregnancy had gone to term without mishap. If retroflexion were congenital, sterility would probably ensue, and it might be that the majority of cases in which sterility coexisted with retroflexion were of this character, though it was necessary, of course, to interrogate the procreative ability of the husband in all cases before giving an opinion. It was not believed that retroflexion of the gravid uterus in multiparæ was due to improper care or treatment during childbed, at least not in all cases. Conception frequently occurred in cases in which retroflexion existed, and this proved that retroflexion was not necessarily a bar to pregnancy. If there were abrasions or catarrh of the uterus, the same careful treatment was indicated as in the non-gravid state. In all of the cases in the author's table there had been abortion in only four, and in ninety-seven there had been delivery at term. Diagnosis of the retroflexion had been made at periods ranging from the second to the sixth month. Replacement of the uterus was indicated in all cases in which it could be done without the use of undue force. Of course this excluded cases in which adhesions were dense and firm. The bladder of the patient should first be emptied; she should then be placed in the knee-elbow position, and replacement effected by pressure with one or two fingers. A pessary should then be introduced, and this might remain until the sixth month of gestation. If replacement or a pessary were inadmissible, a vaginal tampon of cotton-wool might be serviceable in giving support to the uterus. Many cases of retroflexion were relieved by spontaneous replacement, and in many others there was no consciousness on the part of the patient of any morbid condition. In extreme cases one must consider the propriety of emptying the uterus, or even of extirpating it.

Dr. BACHE MOE. EMMET had seen few cases in which pregnancy had been complicated with retroflexion—in fact, he had usually considered such a displacement as a bar to pregnancy. In cases in which retroflexion could not readily be cured he thought that conception might be favored if the womb were raised by a vaginal support, and if pregnancy were present such a procedure would favor its continuance.

Dr. HOWARD KELLY had experienced the importance of curing uterine retroflexion in the cure of sterility which resulted. He believed that retroflexion of the gravid uterus was cured spontaneously in most cases, and that abortion or other severe accidents rarely resulted. The uterus might develop in an abnormal and very faulty position, even though its position were normal at the time of conception. He could conceive of the necessity and propriety in extreme cases of opening the abdomen and relieving a displaced uterus.

Dr. T. A. EMMET considered that backward displacement was always an indication of local inflammation. Such a displacement had little to do with the question of conception, in his opinion, especially if the Fallopian tubes were permeable. He believed he had succeeded in preventing abortion in retroflexed gravid uteri by the use of vaginal packing. If replacement of the uterus were possible, he preferred to place the patient in the knee-elbow position for that purpose, but the replacement would be likely to result in abortion unless it were done without violence. He would not use a pessary after such displacement, as it was attended with danger.

Dr. A. J. C. SKENE did not believe that any condition could arise which would justify the extirpation of the retroflexed gravid uterus.

Dr. H. F. HANKS, of New York, emphasized the necessity of treating retroflexion during pregnancy to prevent abortion, and preferred vaginal tampons to pessaries.

Dr. J. R. CHADWICK believed that pessaries were allowable in the cases under discussion. He thought that abortion in such cases was an infrequent accident. Pregnancy rarely occurred if the retroflexed uterus were firmly fixed by adhesions.

Dr. BOLDT had read reports of cases in which death had resulted from inability to reduce retroflexion of the gravid uterus. It was in such cases that abdominal section was justifiable.

Results of Repression of Menstruation.—Dr. E. C. GEHRUNG read a paper with this title. It had been sufficiently demonstrated to him by an experience of several years that menstruation might safely be repressed by the vaginal or uterine tampon in cases in which the patient could ill afford the loss of blood which accompanied that process. Such a treatment was useful both for prophylactic and for curative purposes. A sanguineous discharge was not a necessary accompaniment of menstruation. In many cases there were only molimina, or a discharge of mucus, or a serous discharge. A bloody discharge was only an accidental accompaniment of ovulation, œstivation, etc., and failed to produce harm in many cases, just as was true of other transmitted habits. In many other cases it was the recognized cause of anæmia. He had never heard that this loss of blood could serve any useful purpose, and its occurrence was not more reasonable than the doctrine of Broussais that men should be bled monthly. If plethora were present, it should be treated rather by redistribution than by abstraction of blood; and if bleeding were ever a safety-valve, it was only in rare instances. What advantage was it to women that they made blood rapidly if they were to lose it as rapidly? It was dangerous to teach that by bleeding, superfluous elements were disposed of. The vaginal tampon was the best means for stopping menstruation, as it gave no shock to the nervous system and communicated no poison to the organism, as did ergot and other drugs. It was indicated with excessive menstrual or intermenstrual flow in all cases. With the scanty menstruation which was often a condition in anæmic women it would prove a source of relief to the anæmia and to the accompanying nervous symptoms. If amenorrhœa were present, the depraved general condition which usually coexisted must first be corrected by diet, tonics, etc., which would tend to restore menstruation. Then the tampon should be used periodically until health returned. The paradox was only apparent; the cause of the morbid condition must first be relieved, and then the morbid condition itself. Other conditions for the treatment consisted in certain neuroses and neuralgias, and in suitable cases it had been found efficient. It was not known that the method had ever been attended by bad results. It would relieve many cases in which mutilating operations would be necessitated if it were not used.

Dr. H. J. BOLDT could not consider menstruation a pathological condition, nor its hæmorrhage accidental. Common as free menstruation was in women, anæmia from such a cause was relatively rare. Again, anæmia might persist after the uterine appendages were removed and menstruation had ceased, thus being entirely independent of menstruation. Cases of purpura hæmorrhagica in which the effusion occurred periodically after the ovaries and tubes had been removed also showed the power of the habit of menstruation as a physiological function. If menstruation were excessive, the vaginal tampon would be indicated, but it would not be well to retain it as long as seventy-two hours, the limit which had been made by the reader of the paper. If it was indicated in women who flowed too freely, it would be well to begin its use two or three days before menstruation was due.

Dr. A. W. JOHNSTONE thought it an error to consider menstruation pathological. It was as necessary a function as respiration. Its object was probably to wash away over-ripe lymphoid corpuscles. The lower animals with whom the womb was in a horizontal position did not menstruate, though there was with them a discharge resembling menstruation, while in apes and monkeys which stood erect menstruation was a regularly performed function, and the flow might be profuse. If the vaginal tampon were used, plugs should also be placed at the mouths of the Fallopian tubes, and, this being done, danger would follow the unrelieved congestion in the broad ligament, which would tend to produce an indication for removal of the tubes and ovaries instead of the contrary, as the reader had stated. The speaker could not help the conviction that menstruation was a portion of the mechanism which prepared woman for pregnancy, for which condition she seemed physiologically intended.

Dr. A. REEVES JACKSON was not satisfied with a theoretical explanation when it was opposed to observed facts. The method of repression for excessive menstrual flow had been used by him for years, and always with beneficial results, and in so far as the reader's method applied to excessive flowing it was indorsed by him.

Dr. GEHRUNG, in closing, stated that he had proposed to use repression only in cases in which the loss of blood during menstruation could not be well sustained. He still thought that excessive menstruation depended more upon vascular than upon nervous influence, the womb and its vascular system being in a weakened condition.

Intermediate Trachelorrhaphy.—Dr. H. J. BOLDT read a paper on this subject. It was admitted by most gynecologists that a great variety of ills might follow extensive lacerations of the cervix uteri, Nöggerath and a few others of prominence not conceding this proposition. Symptoms resulting from such lacerations had been observed by the reader as soon as three months after parturition, but they were usually delayed for a much longer period. An analysis of the histories of three thousand parous women had been made by the reader with the result that one hundred and nine were found in which positive symptoms existed which seemed to be traceable to injuries of the cervix. It being a fact, therefore, that lacerations of the cervix and resulting bad symptoms were possible, and that too in a considerable number of cases, there was a fair foundation for consideration of the expediency of anticipating such bad symptoms by an early operation in cases in which severe lacerations were found. In twenty-six cases the reader had adopted such a plan, in only four of which had there been an unsatisfactory result. Such an operation might be done within a month after parturition; it could be done in one's office without anæsthesia, the patient could go home and attend to her customary duties, and there would be no loss of time, which to many housewives meant a great deal. In doing the operation the surfaces of the torn portions were scraped and the angles freshened, after which catgut sutures were carefully and not too tightly placed. A straight trocar needle was used, a very sharp scraping instrument, and a tenaculum devised for the purpose. The object of the operation was to prevent the conditions which necessitated Emmet's operation.

Dr. BACHE McE. EMMET thought that the object which was sought by the proposed operation was a good one, but he questioned whether there were cases in which such an operation was indicated. It would be impossible to say in advance that Nature would not repair the mischief which had been made, and if she did, no operation of any kind would be indicated. At the early period suggested after labor it was improbable that the uterine tissues would be in condition to favor a successful operation in

most cases. He also strenuously objected to the recommendation to do such operations in one's office, and felt, in addition, that the skill of a gynecologist was required for such cases—that is, that they should not be performed by the general practitioner before he dismissed his obstetrical patients, should the propriety of such operations be admitted.

Dr. SKENE disapproved of the proposed operation as unnecessary. Bad symptoms should be the only indication for the performance of Emmet's operation. It should not be done without an anæsthetic, in his opinion, nor in one's office.

Dr. B. C. BAER, of Philadelphia, understood the proposition in question to be, Was laceration of the cervix *per se* a lesion or not? If it were a lesion, the reader of the paper was right in proposing that an obstetric patient with such a lesion should not be discharged until that lesion was repaired.

Dr. T. A. EMMET believed that the proposed operation should not be performed, nor should trachelorrhaphy in any form be done in the absence of symptoms. If a puerperal patient received proper care, the injury which resulted from a severe labor would be repaired by nature, such care including proper diet, sunshine, vaginal douches, etc. One could not say within a month after labor whether an operation would ever be required. Women who had many pregnancies, which followed each other in quick succession, were the ones who most frequently required trachelorrhaphy.

Dr. ENGELMANN did not think the paper had been quite fairly discussed, in view of the fact that the extent of the injury to the cervix after labor was frequently so great that an operation would almost certainly be required at a future time on account of the characteristic symptoms. He did not approve of doing such operations in one's office.

Dr. BOLDT, in concluding, still believed that intermediate trachelorrhaphy would be beneficial for those who would be almost certain to require such an operation at a subsequent period if it were not done. In view of general disapproval, he would waive the propriety of doing it in one's office.

The Value of Laparotomy in the Diagnosis and Treatment of Minor Forms of Intra-abdominal and Intra-pelvic Disease.—Dr. T. A. ASHBY, of Baltimore, Md., read a paper thus entitled. The limits of laparotomy would apply in general to obscure conditions within the abdomen or pelvis in which all other available means of diagnosis and treatment had been unsatisfactory. There was still an unreasonable prejudice against laparotomy for diagnostic purposes in certain quarters, for it must be remembered that there was no danger in an abdominal section *per se*, but in the way in which it was done. There should be no mortality from simple abdominal section, and it was proper to perform it for any condition which could not be diagnosed by other means. For tubal and ovarian disease he would not advise it, with the rash, who advised it for every such case, nor with the ultra-conservative, who seldom if ever advised it, but with those who followed a middle course in such matters. Laparotomy was indicated for morbid growths within the abdomen, which might be small, but in which relations could not be determined by other means. It was always indicated, he thought, in ectopic gestation, and was much to be preferred, as an expedient, to the use of electricity. It was also indicated for persistent pelvic pain, whether from neuralgic conditions or displaced organs, provided other measures had failed to accomplish the desired end. It was also indicated for many forms of intra-abdominal and intra-pelvic hæmorrhage.

Partial Rotation of the Ovum in Early Pregnancy as a Cause of Placenta Prævia.—Dr. E. W. SAWYER, of Chicago, read a paper suggested by two cases in practice. It was admitted that the ovum was not very firmly attached to the decidua during the early days of pregnancy, hence it was not im-

possible that transmitted violence to the womb might succeed in detaching it, causing it to rotate downward on its axis and lodge in the lower segment of the uterine cavity. This was on the supposition, which was usually accepted, that the ovum was normally attached at first in the upper zone of the uterus. As the ovum became implanted in its new situation, new villousities would develop from the chorion, and the placental site would thus be transferred from the upper to the lower zone in greater or less proximity to the os internum; that is, there would be more or less pronounced placenta prævia. Two battledoor placenta illustrative of this condition were exhibited, also diagrams hypothetical of the process described.

The Protective Influence of Vaccination during the Intra-uterine Life of the Fœtus.—Dr. C. KOLLOCK, of Cheraw, S. C., read a paper on this subject. Congenital malarial fever had many times been observed by the reader in new-born infants in the malarial country in which he lived. The germs of this disease being transmissible during foetal life, it was certainly a fair presumption that vaccinia was equally transmissible. French investigators indeed had proved this, and his own investigations had been merely confirmatory of theirs. He had inoculated thirty-six pregnant women, fourteen being primiparæ. The children were also all vaccinated after birth, failure resulting in five of the children of primiparæ, and in sixteen of the multiparæ. That is, this number of children had been protected by vaccination of their mothers. It was probably better to vaccinate during the later months of pregnancy, when the foetal circulation was active.

Dr. SAWYER, of Chicago, corroborated the statements which had been made, his experience being based upon thirty thousand vaccinations made during the past few years.

A Case of Nephrotomy for the Removal of Calculus of the Kidney.—Dr. J. R. CHADWICK, of Boston, read a paper thus entitled. In the case narrated calculus of the left kidney had been diagnosed by eminent authorities, and an operation had been performed for its relief. The kidney had been opened, carefully explored with the finger, and thoroughly irrigated, but no calculus could be found. Since the operation the bad symptoms had returned, and were always exaggerated when the patient worried. It was believed by the reader that the symptoms were purely of nervous origin.

Dr. A. F. CURRIER, of New York, suggested that the stone might have been in the cortex of the kidney, but so small that it was overlooked, not being appreciated by the examining finger, and so impacted that it could not be washed out. A case presenting somewhat similar phenomena was narrated.

Dr. G. J. ENGELMANN suggested that the possibility of obscure pelvic disease should receive consideration in such cases as the one which had been narrated, and that important information might thus be gained.

AMERICAN LARYNGOLOGICAL ASSOCIATION.

(Continued from page 271.)

Some Points in the Pathology and Treatment of Disease of the Nasal Pharynx.—Dr. J. N. MACKENZIE, of Baltimore, read a paper on this subject. (See page 371.)

Some Personal Observations upon the Acute and Chronic Enlargements of the Adenoid Tissue at the Vault of the Pharynx, and the Means used for their Relief.—Dr. D. BRYSON DELAVAN, of New York, read a paper with this title. (To be published.)

Dr. F. H. HOOPER, of Boston: I have been much interested in both of these papers and agree, in the main, with what has been said. I think Dr. Delavan's explanation of the case seen

by Sir William Dalby and others correct. The extreme vascularity and erectile nature of this adenoid tissue were impressed upon me by one of my own cases. A young lady, twenty years of age, came to me with an attack of acute coryza, and I found what I considered a good-sized adenoid growth at the vault. After the acute attack subsided the growth had almost entirely disappeared.

I think the post-nasal probe an indispensable instrument for a proper examination of the naso-pharyngeal cavity in adults. The parts often look smooth when examined with the mirror, and I have been surprised in these cases, when examined with the probe with the aid of the mirror, to find what a large amount of hypertrophied tissue might be present. In many cases we might be deceived regarding the condition of this cavity if we relied upon the eye, while an examination with the probe or the finger would set us right. When adenoid tissue is present it ought to be removed as thoroughly as possible. The two chief indications for its removal are obstructed respiration and defective hearing. When a child's nasal breathing is obstructed by these growths they should be removed immediately, no matter what the season of the year might be. With regard to the question of hæmorrhage, I have never seen alarming bleeding except in one case. This was in a very sickly boy, ten years of age, with typical hæmophilia, on whom I declined to operate in the usual manner. In this case fatal hæmorrhage followed gentle scraping of the adenoid mass with the finger-nail. The amount of secretion during the operation depends, I think, upon some idiosyncrasy of the patient rather than upon the nature of the anæsthetic, whether chloroform or ether.

Dr. S. W. LANGMAID, of Boston: There is one thing that has not been mentioned in regard to anæsthetics. As Dr. Hooper has said, we do not give chloroform. We give ether, with the greatest confidence as a stimulant, to patients with a failing pulse. If the pulse is feeble, it increases in volume and strength during the administration of ether. Yet, confident as we are in the use of ether, I had an experience a few weeks ago which is not uninteresting. I was asked to operate at the Children's Hospital. I had not seen the child until it was brought to the table. It was a scrofulous, rather weak child, and I was told that it had hip disease. I proceeded in the ordinary way and removed the adenoma. All at once there was heart failure, requiring the rectal injection of ammonia and brandy, and also the subcutaneous injection of the same drugs.

Dr. HARRISON ALLEN, of Philadelphia: I wish to confirm the statements of Dr. Delavan. I had intended to prepare a paper upon the subject which he has so admirably treated. This is now unnecessary. It may interest the fellows to know that the cases that I have had confirm in every particular the conclusions which he has presented. There is a state of pharyngeal distress and ear distress in adults due to something at the vault of the pharynx. Whether it is a recession, or a juvenile condition, or pharyngeal palsy, or some other factor, the truth remains that there is something which the eye will not detect, but which the probe will detect, and, above all things, the finger will detect. The finger can not be used without the employment of an anæsthetic. I think that this is an important thing to be considered. I always insist that an anæsthetic should be given if the condition of the heart admits. This condition is not one that can be treated by nagging processes. Under anæsthesia you can clear out the pharynx and you have the aid of the sense of touch. I have noticed that this material may remain at the anterior part of the vault over the sphenoid bone. I have not been able to dissociate it from some trouble connected with the union of that suture. There is often a recession which is not detected by the mirror.

In respect to ear complications, we read in books devoted to

the ear of obstruction of the Eustachian tubes. I have never found mucus in the tubes where aural trouble was complained of, and you may often see a quantity of mucus, pus, or something else occupying the tube and no ear distress. Is it not possible that the ear distress is due to a state of vascularity and congestion determined by pressure outside of the tube by the adenoid? At any rate, a very small amount of this tissue will cause these symptoms, and often nothing but the finger-tip will reveal its presence. Doubtless this may exist without symptoms, but where reflex symptoms are complained of and the patient comes for diagnosis and treatment, we should make a thorough exploration under an anæsthetic, and if anything is found, take it away. I have often etherized patients and found nothing, but I have never regretted it. There is often no way of determining the presence or absence of this condition without anæsthesia. I always use ether. I was educated never to use chloroform, and I am timid about it. Whether or not this is simply the result of early impressions I am unable to say; I am not able to analyze it. I have used ether without accident.

Dr. J. C. MULHALL, of St. Louis: I have for several years laid it down as an axiom for practical guidance that the pathology of the pharyngeal tonsil was exactly the same as that of the faucial tonsil. Some two years ago a physician of St. Louis came to me with an acute attack, with a temperature of 103° and a great deal of distress and pain about the ears. On examination, I told him he had a follicular inflammation of the pharyngeal tonsil, and he was very much surprised. There was a great deal of swelling of the parts with some exudation from the follicles. That we may have acute exacerbations of the hypertrophy of this part there is no doubt.

I wish to call attention to an instrument which has been very satisfactory in my hands and which was invented by Dr. Gradle, of Chicago. The only objection that I have to it is that the blades open laterally. In one case, in attempting to use this instrument, I caught a portion of the soft palate and tore it. Another objection to the instrument is that it is difficult to grasp that portion of the adenoid that lies close to the septum, and that you are liable to grasp the septum. I have had a forceps constructed with the blades opening antero-posteriorly, and with this instrument I have always been able to remove all the tissue in that region. I have operated a great many times, and only in two or three instances did I require an anæsthetic. Since the introduction of cocaine I have found that the disagreeable part of the operation, which is the scraping of the instrument against the healthy pharyngeal wall and palate, can be avoided. I have applied cocaine thoroughly to these parts, and have succeeded without general anæsthesia. I have never seen any shock in these children. Only on one occasion, where, by the way, this adenoma had escaped detection for ten years, was there any difficulty in inducing the child to return. I have never seen any hæmorrhage. I should like to repeat the fact, not generally known to the profession, that the pharyngeal tonsil is liable to the acute diseases that affect the faucial tonsil.

Dr. F. I. KNIGHT, of Boston: I should like to give, as I have no doubt that it will be of interest, the experience of one of our surgeons in pre-rhinoscopic days. This surgeon had had a great deal of experience in the removal of naso-pharyngeal tumors. One day he told me that he had a case of naso-pharyngeal tumor, and that he would like me to look at it with my mirror. He had done a preliminary tracheotomy, and intended to slit the palate and remove the tumor. I examined the patient and told him that I did not see anything except a little hypertrophied gland tissue. He replied that he had felt a tumor with his finger. He again introduced his finger, and the look of astonishment that came over his face was wonderful. It was one of those cases of acute exacerbation of the adenoid

hypertrophy—one of those cases which occur but once in a lifetime.

In regard to chloroform, we have always been instructed that, while chloroform may be given with perfect safety in the recumbent posture—as, for instance, in midwifery—we have always been told not to give it in the sitting posture. I would ask Dr. Delavan if he operates with the patient in the sitting or recumbent posture.

Dr. DELAVAN: I always place the patient on his back. I should not consider it safe to use chloroform in the sitting posture.

Dr. W. E. CASSELBERRY, of Chicago: There is one point concerning the technique of the operation for naso-pharyngeal adenoma which I have not seen mentioned. I am impressed with the importance of thoroughly eradicating these growths. This was especially shown in two cases recently in which the operation was performed for the relief of reflex symptoms. In one case spasm of the glottis, and in the other spasmodic asthma, was associated with adenoid enlargement. In both cases material relief followed the operation. The patient with spasmodic asthma, from having the attacks every week or every few days, remained free on one occasion as long as six months. The spasm of the glottis, attacks of which had recurred several times daily, now came only two or three times a month. In neither case was the operation sufficiently thorough to eradicate all the growths, as prominences here and there could subsequently be seen with the rhinoscope, and sufficed, doubtless, to occasion the remnant of symptoms.

With a view to greater thoroughness, I thought it might be possible to see what was being done during the progress of the operation. In order to do this I tied the velum forward with an elastic band passed through both nostrils and out through the mouth. I used the Vienna chloroform mixture, for two reasons—first, because I thought that it might occasion less secretion, and, second, because I desired to have my gas-lamp in immediate proximity. I operated with the patient in the sitting posture, and ether no doubt would be safer, and, with the substitution of the electric light for the gas flame, would be unobjectionable. The operation, so far as seeing was concerned, was not an entire success. In one case I could sponge out the blood and occasionally get a view; in the other case I was unable to do even this. I, however, found that tying the velum forward facilitated the operation. It was no longer necessary to hook the velum forward with the finger, which delays the operation. It might be urged in this connection that tying the velum forward would prevent the ready swallowing of the blood, and thus favor its entrance into the air-passages. To obviate this, as soon as a piece was taken out I had the patient's head and body inclined forward. It is important to do this at all times when there is anything like free hæmorrhage, and when operating with the patient in the sitting posture. The tying of the velum forward and the inclining of the patient forward are two points in the technique of the operation which have given me great satisfaction.

Dr. J. N. MACKENZIE, of Baltimore: In operating I do not adopt the plan referred to by Dr. Delavan and Dr. Hooper. Unless the patient is young, or unruly, or comes from a distance, I generally operate at different sittings, removing a portion every day, or every other day, for about a week or ten days. In this way I get rid of the growth with no hæmorrhage to speak of, with very little pain, and without the use of anæsthetics. If the patient seems to feel pain, I use cocaine or some other local anæsthetic.

In regard to the point made by Dr. Hooper with reference to passing a probe over a smooth and apparently healthy surface, I have had this experience. Some time ago I treated a

case of obstinate post-nasal catarrh in which there was apparently no hypertrophy of the pharyngeal tonsil as seen by the mirror. An immense quantity of muco-purulent discharge poured out of the pharynx every day, and I became completely dissatisfied with my work. It suddenly occurred to me to make a deep incision in the pharynx, and, with the acquiescence of the patient, I made an incision with a curved knife into the smooth and apparently healthy tissue. This was followed by the discharge of a large amount of a colloid sort of matter, and with great relief to the patient after a few days. He is still under observation. I am trying to remove as much as possible of the pharyngeal tonsil. Since the incision the amount of discharge has lessened very notably.

I have seen only one case in which hæmorrhage was very severe. It was the case of a young colored girl sent to me from one of the lower counties of Virginia. The growth was apparently of an adenomatous character. The soft palate was pushed forward almost to the teeth, the whole month was filled with this enormously stretched palate, and nothing could be seen beyond the mass of flesh and tumefaction. There was a little slit on the side through which she could take liquid nourishment. The child was badly nourished, and also had a large adenoid tumor of the neck. When I put my finger into the naso-pharynx, it caused a most alarming hæmorrhage. When I examined the nose, a tremendous flow of blood took place from both nostrils. She had also strabismus, and both eyes were exophthalmic. I hesitated about performing any operation. I took her to the Baltimore Academy of Medicine, and several surgeons examined her. One of them put his finger into her mouth, and the bleeding was so great that we thought she was going to die. None of them would undertake the case, and neither would I. Afterward she left the hospital by climbing a tree and jumping the fence and escaping.

As a rule, the hæmorrhage in operating is very slight. It may pour out of the nostril, but it always stops of itself. I think that hæmorrhage on digital examination may be considered almost a diagnostic sign.

I have never met with any accident. The only thing that I recall was in the case of a little girl who was thoroughly anesthetized and the operation done at a single sitting. A bichloride solution was left with which to syringe out the naso-pharynx. The next day there was a rise of temperature to 103° or 104°, with some pyæmic symptoms. These all passed away after washing out the retro-nasal space.

I consider these cases of adenoid growths as among the most brilliant that we meet with in nasal surgery. There is only one other point to refer to, and that is the nature of these growths. They have been spoken of as adenoid. The growths that I have seen in Baltimore have been of a papillomatous character. I have examined a number of them under the microscope, and their structure does not differ from that of papillomatous growths in other localities. There is, however, a variety which is adenoid; and I believe that is the form which Dr. Hooper sees in Boston, and which Meyer saw most frequently in Copenhagen. We should distinguish between these different varieties. The adenoid growths are more difficult to remove, and occasion more pain than the soft papillomatous growths.

Dr. DELAVAN: I have nothing to say in addition, except to reiterate the fact, which I appreciate the more the oftener I operate, that the operation is painful and that in many cases cocaine does not meet the requirements. Indeed, it seems impossible that it should in a growth of considerable size, for the cocaine can only be applied to a small portion of the surface, and that the most remote from the pedicle. The operation is painful, and in the majority of cases an anæsthetic will give great help not only to the operator but to the patient.

Note on the Galvano-cautery in the Treatment of Hypertrophied Tonsils.—Dr. C. H. KNIGHT, of New York, read a paper with this title. (To be published.)

Dr. T. A. DEBLOIS, of Boston: I think that the principal objection to the removal of the tonsil, or rather snipping it off, is the production of a scar in the mouth. I have not cut a tonsil for a great while. I used to cut every one that I could. I have used the cautery point in two cases of enlarged tonsil, with excellent results. I have not heard Dr. Knight refer to the use of the electrolytic needle, which I have employed with satisfactory results. The pain under cocaine is very slight. A very small amount of electricity will produce chemical changes in the fluids of the part. Half a dozen punctures each day will in a short time, in the majority of cases, produce a great diminution in size. I use this only in adults. I do not employ it in children, for in them the tonsils are very apt to lessen in size.

I agree with Dr. Knight in regard to the pain and distaste of the cautery point. The smell is very objectionable, particularly in the clinic room, where the smell will last half the morning. These patients do not come back if they can help it. I think even then it is preferable to the use of the guillotine.

Dr. CHARLES E. SAJOUS, of Philadelphia: I have frequently used the galvano-point. I think that in his first paper Dr. Knight stated that eight or ten applications were sufficient to bring down certain tonsils. Such has not been my experience. It has generally taken eighteen or twenty sittings to reduce tonsils of any size. So far as the odor and pain are concerned, I think that after the first or second visit we have very little trouble with the patient on that score. I can lend my voice to that of Dr. Knight in support of the galvano-cautery point in the treatment of enlarged tonsil, especially where the density is not great. In these cases cicatricial contraction assists in reducing their size. I burn as deep as the knife will go—about a third of an inch.

Dr. W. H. DALY, of Pittsburgh: If we wish to retain the respect of one another and of the profession generally, it seems to me that we should do our surgical work in a surgeon-like manner. I must say that I have very little patience with methods of treatment of enlarged tonsils which would subject the patient to half a dozen sittings with a plaything like the instrument that my friend Dr. DeBlois speaks of. I am astonished that a man of his proportions, mentally and physically, would indulge in the use of such a child's toy as that. I speak of this derisively because I have used it repeatedly until I satisfied myself that I was wasting my time and stultifying not only myself but my patients.

I believe that in the normal throat there is no tonsil that you can discover beyond the line of the half arches, and that should be the rule to guide us in abscission—and I mean abscission and not burning with the galvano-cautery knife. We should have one object in view, and that is to restore the abnormal throat to a condition as near anatomically perfect as possible. First use the amygdalotome if you wish to, but this will not do the work completely. Then with a probe-pointed curved bistoury and toothed forceps trim off the remaining portion of the tonsil until the half arches fall where nature intended them to fall—to their proper places. You will then have improved phonation and improved general health, and, if the patient has a predisposition to pulmonary disease, he will not be handicapped by a condition of affairs which God Almighty did not intend should exist in health at least.

I reiterate, then, that if we wish to retain the respect of each other and of the profession—for our special branch is the youngest of all—we must throw away our toys and playthings and do our work like sensible men and surgeons.

Dr. DEBLOIS: If Dr. Daly wishes to cut off tonsils with an axe, he may be allowed to do so. If he wishes to cut them off behind the horns, he ought to be permitted to do so. But there are other ways of reducing the size of tonsils. I do not think that he should speak of the electrolytic needle as a toy, for it does its work. I do not think that he should be permitted to sit down upon the whole system because it did not happen to work in his hands. I have seen tonsils atrophy under its use. There is no reason because we do surgery that everything should be cut off, and nothing treated so as to atrophy, if that is possible.

Dr. F. H. BOSWORTH, of New York: I have listened with no little amazement to this discussion. I believed that the simplest operation in surgery in the hands of a competent laryngologist was cutting out of the tonsils. I can conceive no possible justification in submitting a patient to eighteen or twenty operations when the whole thing can be done in a moment. I indorse every word that Dr. Daly has said. The enlarged tonsil requires to be taken out just as much as a fibroid tumor of the uterus, and it should be taken out entire, not in pieces. I do not suppose that any man would say that a fibroid tumor of the uterus should be partially removed. In the same way there is no justification for removing a part of the tonsil. No one would think of removing a fibroid tumor in eighteen or twenty sittings. There is no case on record of death from hæmorrhage after the operation of cutting out the tonsils, and this is the only danger attendant upon the operation. I do not think that Dr. Daly's remarks are in the least overdrawn.

Dr. C. C. RICE, of New York: There are a few cases of enlarged tonsils in which the use of the galvano-cautery is the best operation that can be employed. I have in mind a case operated on within the last few weeks—that of a gentleman about forty-five years of age, who has had attacks of suppurative amygdalitis repeatedly; the tonsil was very large, very firm, and filled with blood. One tonsil had been excised by a physician in New York and the man nearly bled to death. He bled, in fact, until syncope took place. I saw him some weeks later, when he was suffering with a fresh attack of amygdalitis. The tonsil which had been removed was excised with the guillotine and the pillars were not injured. I preferred, with such a history, to use the galvano-cautery for the remaining tonsil. I would say to those who think that little can be accomplished with the galvano-cautery, that the whole of a large tonsil in an intelligent adult can be removed at a single sitting. The tonsil was treated with cocaine, and the edge of the galvano-cautery point was inserted into the tonsil at the level of the pillars and the tonsil cut through. The whole of the tonsil down to the pillars was removed at one sitting. There are a few such cases in adults, where there has been a history of hæmorrhage and where frequent attacks of inflammation have left the tonsil immensely congested, where the galvano-cautery used in this manner is efficient. In excising large congested tonsils in adults I have several times proceeded in the following manner: I have employed a dull amygdalotome, and have pushed the blade down very slowly. Cocaine is used so that the patient can easily tolerate the instrument in the mouth for some time. There is little pain. In this way the blood-vessels are compressed before they are cut.

Dr. C. H. KNIGHT, of New York: My object is to call attention particularly to the loop operation, which in my opinion is superior to ignipuncture. It can be done at one sitting. The portion of tonsil removed does not indicate the extent of the operation. A good deal of the tissue that remains will slough, and contraction takes place. The thoroughness of the cautery-loop operation has been equal to that with cutting instruments. I would not for a moment be suspected of opposing amygdaloto-

my. Yet we sometimes meet with cases which can not be cut. It is to these exceptional cases that the galvano-cautery is adapted.

Dr. DALY: I merely want to add a word in justification of my remarks, that may have seemed bold and harsh. I do not get up to apologize. I apprehend that this is a society for scientific advancement. It is not a mutual admiration society. It is well enough to indulge in our love feast with our legs under the mahogany at our annual banquet. I believe that here is the place where candid opinions should be expressed, even if they are not expressed in as polished language as they ought to be. This is better than to pat a man on the back and say, "You are doing the very thing—just go on in that way," when in truth we believe he is doing the wrong thing, while he is quite capable of doing what is creditable and efficient, both for himself and for his patients.

The Treatment of Diseased Tonsils when unattended with Hypertrophy.—Dr. JOHN O. ROE, of Rochester, read a paper on this subject. (To be published.)

Dr. H. L. SWAIN, of New Haven: I have had an interesting case in which the recurrence of swelling of the lingual tonsil was due to the presence of these hard or caseous masses in the faucial tonsil. I only succeeded in subduing these attacks by treating first these crypts in the faucial tonsil. The treatment which proved successful, and easily so, was the laying open of the crypt with the galvano-cautery knife and thoroughly cauterizing the interior, more by ignipuncture than by any attempt to burn out the whole cavity. The case has been watched for several months and the result remains good.

Dr. J. SOLIS-COHEN, of Philadelphia: These conditions of the tonsil have given me a great deal of trouble for years. I find that many cases of spasmodic cough are due to nothing else than the presence of these masses in the crypts and lacunæ of the tonsil, sometimes even without any evidence of their presence on the surface. I find these not only in the enlarged tonsil, but also in the apparently contracted tonsil. It is sometimes necessary to produce some gagging so that the posterior surface of the tonsil will present itself before you detect the mass. In obscure cases of spasmodic cough I have for a long time carefully examined the tonsil as a possible source of reflex irritation.

Where the tonsils are enlarged I believe the best treatment to be excision. In those cases where the tonsil is atrophied or apparently atrophied—for even here the tonsil may be as large as a large almond—I press the matter out with a blunt scoop, and then use a simple astringent consisting of one grain of creasote, one grain of iodine, and five grains of iodide of potassium to the ounce of glycerin. By getting this well down into the lacunæ, you can sometimes cure these cases. Where this does not answer, I have taken a pair of curved serrated scissors, such as were long ago recommended for other purposes by Dr. Benjamin Ward Richardson, to cut the crypts open. One blade is put into the orifice and the part is cut through, and then with a dull scoop the crypts are scraped as thoroughly as possible. Sometimes this leaves ragged edges, but these can readily be snipped off.

I believe that this disease is not so well appreciated by the profession as it should be. I have seen many cases of prolonged cough, extending over a period of five or ten years and longer, completely and permanently relieved by treatment of this condition.

Dr. DELAVAN: My experience is entirely in harmony with the statements of Dr. Lennox Browne upon this subject, and I agree with the reader of the paper. The pathological tonsil is, I think, by no means limited to the one in which hypertrophy alone is present. There are many other conditions of the tonsil

which give rise to difficulties both direct and reflex, and which can only be relieved by attention to the tonsil.

Dr. DALY: There is another condition which was not brought out in the paper, and which I have more than once observed in cases where the lacunæ had become filled with cheesy matter, and that is that the patient would become really ill, suffering with headache, loss of appetite, lassitude, and other evidences of disordered secretion; and, before I adopted the method of abscising the tonsil and obliterating the lacunæ, I made sufficient observations to satisfy myself that these accumulations were the cause of the general symptoms by an auto-infection.

There is another point: these accumulations render the breath exceedingly offensive, and to some persons this is especially disagreeable. I am much obliged to Dr. Roe for giving us this excellent paper and dealing with this subject in such a common-sense way. I believe that the treatment should be radical and curative, not tentative.

Dr. F. I. KNIGHT: It seems to be a question whether or not in such cases the underlying condition is not some constitutional fault, or possibly some digestive disturbance. In some typical cases I have seen the follicular exudation not only upon the tonsil, but also upon the tongue, the lingual tonsil, the soft palate, and the back of the pharynx. It seems as though they frequently came in connection with some constitutional disturbances, and we shall not succeed in relieving the patient entirely from this exudation until we modify the constitutional or digestive condition.

I had one notable case, such as Dr. Cohen describes, where the patient for years had an irritative cough, and discomfort always referred to one side of the throat. The cause of the trouble had escaped detection by several observers, and I did not discover it for several visits. On making her gag and throw out the tonsil, I found the point of one of these exudations. I then passed a probe in as far as possible and scooped out a cretaceous mass as large as a pea or larger. The symptoms were at once relieved.

As far as local treatment is concerned, I would say that I have had satisfaction with the cautery point, or with any destructive agent which I have had the patience to introduce into each one of these follicles after it was emptied.

Dr. S. JOHNSTON, of Baltimore: As bearing upon this condition of the tonsil, I would state that in three cases which have come under my observation the exudation from the follicles, instead of being a soft, cheesy material, resembled little spicules of bone or small crystals of alum. These adhered with great tenacity to the tonsils, to which, however, they were not confined, but were also found on the fauces and the post-pharyngeal wall. They can sometimes be drawn out with great difficulty, and are exceedingly painful to the patient, who often complains of a foreign body in the throat. Two of my cases were in children and the third was a physician from a neighboring county. I tried a great variety of remedies, but the best results were obtained from chromic acid in ten-per-cent. solution. After one application, the parts being previously sprayed with an antiseptic solution of phosphate of sodium and carbolic acid, these crystals could be drawn out with the forceps. The specimens were not examined microscopically. If any of the gentlemen have had similar cases I should be glad to hear of them.

Dr. RICE: I have recently seen a most remarkable case of retained tonsillar secretion—remarkable on account of the large amount of cheesy material present; not only does it fill the lacunæ of the faucial tonsils, but the lymphatic tissue at the back of the tongue is whitened with the deposit. In this case the tonsils are normal; there are no adhesions to the pillars. I

have listened with interest to the remarks of Dr. Daly, and I had hoped that some information would have been gained as to the constitutional conditions causing or associated with this retention of tonsillar secretion. I have tried to discover any constitutional peculiarities in my case. The patient has had diphtheria two or three times, and everything in the way of an explanation seems to point toward local causation.

I can bear witness to Dr. Daly's belief that this retention affects the general health. It also causes an offensive breath. While the general condition of my patient is quite good, she suffers with headaches, symptoms of indigestion, and is frequently tired and miserable. The tongue is very much coated. This tonsillar cheesy material has been found by a German investigator to contain putrefactive bacilli.

I am treating my case with the galvano-cautery puncture.

Dr. DALY: I fear that I did not make myself clearly understood. I desire to emphasize the point that the retention of this fetid filthy material in the tonsillar lacunæ is the cause of the general illness of the patient.

Dr. ROE: I am glad to know that the observations of so many of the fellows present have been in accord with those which I have made on these particular diseased conditions of the tonsils. There is one point regarding the ætiology of the first condition of the tonsils described in my paper that has been, I believe, entirely overlooked. It is that this lacunar catarrh and disease of the crypts are the result of hypertrophy of the tonsil, and that the closing up of the lacunæ often results from the attempts that are made to reduce the size of the tonsil during childhood by repeated applications of astringents, which have no other effect than to close the external orifice of the lacunæ and to cause a retention of the secretion which distends the crypts of the tonsils, and the secretion, becoming decomposed, adds to the abundance of the discharge. The tonsils, accordingly, become diseased throughout, and are in appearance, when cut through, much like a honeycomb. I have found the application of remedies thrust into the openings of such tonsils to be of no value, because so few of the crypts can be reached. The only radical treatment is the removal of the diseased portion. This is also the case with the fibrous form, which results from atrophy of the stroma and the deposit of fibrous tissue. In both of these cases the function of the tonsil is practically abolished, and the only way to remove the difficulty is to remove the diseased mass.

Miscellany.

The New York State Examination of Persons intending to Study Medicine.—The Board of Regents of the University of the State of New York has issued the following circular:

1. The Legislature during its recent session enacted the following law to elevate the standard for admission to practice medicine:

"AN ACT to provide for the preliminary education of medical students.

"APPROVED by the Governor, June 13, 1889. PASSED, three fifths being present.

"*The People of the State of New York, represented in Senate and Assembly, do enact as follows:*

"SECTION 1. Before the Regents of the University of the State of New York or the trustees of any medical school or college within this State shall confer the degree of doctor of medicine on any person, who has not received a baccalaureate degree in course from a college or university duly authorized to confer the same, they shall require him to file with the secretary or recording officer of their university or college

a certificate showing that, prior to entering upon the prescribed three years' study of medicine, he passed an examination conducted under the authority and in accordance with the rules of the Regents of the University of the State of New York, in arithmetic, grammar, geography, orthography, American history, English composition, and the elements of natural philosophy, and such certificate shall be signed by the secretary of the regents and countersigned by the principal or commissioner conducting said examination.

"SEC. 2. This act shall not apply to persons who have already entered upon the prescribed three years' study of medicine, nor shall it alter the time of study or the courses of medical instruction required to be pursued in the medical colleges of this State by existing statutes.

"SEC. 3. This act shall take effect immediately."

2. For the accommodation of candidates under this law, special examinations will be held at the times and places noted in the annexed schedule. All correspondence on this subject should be addressed to Edward I. Devlin, A. M., the commissioner in charge of such examinations, at the Regents' Office, Albany, N. Y.

3. All candidates must notify the commissioner, by letter, at least one week in advance, stating at what place and in what studies they wish to be examined. No fee will be charged, and candidates will be informed of the result within twenty days from the close of the examination.

4. To insure success, the candidate should have a thorough knowledge of the whole of a standard school text-book on each of the required subjects, but cube root will not be included in the arithmetic examination.

5. Printed question-papers will be issued from the office of the Regents for each examination. The answers must be written in ink on legal cap paper, and arranged and numbered in the same order as the questions. Candidates should bring paper, pen, ink, and blotter.

6. Seventy-five per cent. of correct answers is required in all subjects except orthography. In the latter study, the candidate must spell correctly eighty-five out of one hundred words, such as are commonly used in current literature.

7. In the examination in arithmetic the entire operation required for obtaining the result must be given, and the answer or result must be reduced to the simplest form.

8. The candidate must write at the top of the first page of his answer-paper (1) the place of examination, (2) the subject, (3) the date, (4) his own full name, (5) his post-office address.

9. At the conclusion of his answers on any subject, or at the expiration of the time allotted for such subject, the candidate must make and subscribe to the declaration given below, by writing on the lines immediately succeeding the last answer the words: *I do so declare*, and then his name. Every paper lacking this declaration and signature will be rejected. The declaration to which he thus subscribes is as follows:

[*Form of Declaration.*]

"Do you now, at the close of the examination in arithmetic (etc., as the case may be), conscientiously declare that you had no knowledge of the questions to be proposed, that you have neither given to any other candidate nor received from any source explanations or other aid in answering any of them, and that you have not spent more than the allowed time? If so, write in the next line after the end of your set of answers, near the right side of the paper, the words *I do so declare*, and underneath *subscribe your name.*"

10. All papers which fall below the required standard will be returned to the candidate. For those accepted, pass cards, certifying such proficiency, will be issued, and when all the subjects are completed, the certificate provided for in Article 14 will be sent.

11. Candidates may offer at any trial one or more of the subjects required, and the subjects passed at such trial will be placed to their credit on the records of the Regents. In like manner, subjects passed in the regular Regents' examinations in the academies will be allowed and credited to candidates. Should a candidate allow an interval of five years to elapse without passing an additional subject, he will be deemed to have relinquished his candidacy, and will be dropped from the records.

12. Examinations in the subjects required by this law also form a

part of the system established by the Regents and conducted in the 308 academical institutions under their visitation throughout the State. The dates for the current academic year are November 18-22, 1889; January 20-24, 1890; March 3-7, 1890; June 9-13, 1890.

13. While candidates will find the special examinations better adapted to their purpose, they may enter the examinations held in the academies; *provided*, in all cases, that they make application to the principal at least two weeks in advance, and pass the examinations in the several subjects at the same time and under the same regulations, as the candidates in attendance at such academies; and *provided* that they pay to such academies a fee of one dollar for each subject entered for examination. The answer-papers of persons so examined will be reviewed at the Regents' office in the same order as those of pupils in regular attendance, but they will lose no time by necessary delay at this office, if their papers are satisfactory.

14. Whenever all the subjects required have been passed by a candidate, and he has mailed to the commissioner, at Albany, a claim specifying when and where each subject was passed, the Regents will grant him a special certificate, known as the *Medical Student's Certificate*. This certificate is to be signed by the commissioner or principal conducting the examination. It will not be issued to pupils in regular attendance at an academy, but only to those who have finished their academic course and are actually entering upon the study of medicine.

15. These instructions are subject to such changes as may from time to time be deemed necessary.

SCHEDULE OF EXAMINATIONS, 1889-'90.—1. *Special Examinations for Medical Students*: Albany, October 8-10, 1889, October 29-31, 1889, February 18-20, 1890, at the Albany High School. Binghamton, December 17-19, 1889, at the Binghamton Central High School. Buffalo, September 30-October 2, 1889, February 4-6, 1890, at the Buffalo High School. Elmira, May 13-15, 1890, at the Elmira Free Academy. Ithaca, October 15-17, 1889, at the Ithaca High School. New York city, October 23-25, 1889, April 1-3, 1890, in the amphitheatre of Bellevue Hospital, Twenty-sixth Street and First Avenue. Poughkeepsie, January 7-9, 1890, at the Poughkeepsie High School. Rochester, December 10-12, 1889, April 8-10, 1890, at the Rochester Free Academy. Saratoga Springs, May 27-29, 1890, at the Saratoga Springs High School. Syracuse, October 3-5, 1889, at Syracuse University, Medical Department; January 21-23, 1890, at St. John's Catholic Academy, Lock Street. Utica, March 25-27, 1890, at the Utica Public Library.

The order of studies at all examinations will be: First day—Arithmetic, 10 A. M. to 12.30 P. M.; geography, 2 to 3.30 P. M.; orthography, 3.30 to 4.30 P. M. Second day—English grammar, 10 A. M. to 12.30 P. M.; American history, 2 to 4.30 P. M. Third day—Rhetoric and English composition, 10 A. M. to 12.30 P. M.; elements of natural philosophy, 2 to 4.30 P. M.

All candidates for these special examinations must notify Commissioner Devlin at Albany, by letter, at least one week in advance, stating at what place and in what studies they wish to be examined.

2. *At academies, examinations will be held as follows*: November 18-22, 1889; January 20-24, 1890; March 3-7, 1890; June 9-13, 1890.

All candidates for examination at the academies must notify the principal at least two weeks in advance, stating in what studies they wish to be examined. The principal will then order question-papers for them and inform them of the days and hours of examination.

The American Rhinological Association will hold its seventh annual meeting at the Palmer House, Chicago, on the 9th, 10th, and 11th inst., under the presidency of Dr. John North, of Toledo, Ohio. The programme includes the following items: "Report of a Case of Brain Abscess emptying into the Naso-pharynx," by Dr. L. B. Gillette, of Omaha, Neb.; "The Reason why so many Physicians fail in Treating Chronic Rhinitis," by Dr. Thomas F. Rumbold, of St. Louis; "Conjunctival Troubles the Result of Nasal Disease," by Dr. J. G. Sinclair, of Nashville, Tenn.; "Ocular Reflex Symptoms in Nasal Diseases," by Dr. C. H. Moore, of Indianapolis; "Therapeutic Measures in Rhinology," by Dr. N. R. Gordon, of Springfield, Ill.; "Report of the Insane Asylum Committee appointed at the last meeting to make rhinal examinations and report 'On the Relation of Rhinal Inflammation to the Mind Affec-

tions," by Dr. Thomas F. Rumbold, of St. Louis, chairman; "Reflex Symptoms of Rhinal Diseases, with Reports of Cases," by Dr. C. L. Dreese, of Goshen, Ind.; "The Administration of Quinine where there is Defective Hearing," by Dr. E. L. Sessions, of Hillsboro, Tex.; "Rapid Operations in removing Foreign Bodies of the Nasal Chambers," by Dr. Carl Von Klein, of Dayton, Ohio; "Surgical Treatment in Diseases of the Nose," by Dr. A. De Vilbiss, of Toledo, Ohio; "Catarrhal Neuralgia," by Dr. A. G. Hobbs, of Atlanta, Ga.; "Constitutional and Hygienic Treatment of Rhino-pharyngeal Inflammations," by Dr. R. S. Knode, of Omaha, Neb.; "The Prescribing of Sprays to be used by Patients," by Dr. Frank D. Green, of Louisville; "Asthma is a Neurosis, or the Ætiology, Pathology, and Treatment of Asthma," by Dr. J. G. Carpenter, of Stanford, Ky.; "Reflex Inflammation of the Nose and Throat," by Dr. E. L. Siver, of Fort Wayne, Ind.; "Climatology," by Dr. T. F. Rumbold, of St. Louis, Mo. In addition, papers by Dr. A. B. Thrasher, of Cincinnati, and Dr. E. McClellan, of Chicago (titles not specified), are announced.

The New Tri-State (Alabama, Georgia, and Tennessee) Medical Association will meet at the Chamber of Commerce, Chattanooga, Tenn., on the 15th and 16th inst. The secretary announces the following items: Demonstrations with the microscope, by Dr. James A. Reeves, of Chattanooga; "Stricture," by Dr. Daniel H. Howell, of Atlanta, Ga.; "A Case of Typhoid Fever with Subnormal Temperature and Subnormal Pulse," by Dr. A. S. Wiltse, of Kismet, Tenn.; "A Plea for the Medical Education of Females," by Dr. Charles P. Gordon, of Dalton, Ga.; "Cholecystotomy, with a Case," by Dr. E. E. Kerr, of Chattanooga; "Report of a Case," by Dr. W. T. Blackford, of Graysville, Ga.; "The Physiology of the Heart and its Valves," by Dr. W. L. Gahagan, of Chattanooga; "The Relation of the Specialist to the General Practitioner," by Dr. F. W. Skillern, of Pikeville, Tenn.; "Some Points in the Diagnosis of Skin Diseases," by Dr. E. A. Cobleigh, of Chattanooga; "Imaginary Foreign Bodies in the Throat," by Dr. Max Thorner, of Cincinnati; and "Antiseptic Midwifery," by Dr. F. W. McRae, of Atlanta, Ga. Besides these, papers by Dr. F. B. Sloan, of Cowan, Tenn., and Dr. W. C. Maples, of Bellefonte, Ala. (titles not mentioned), are expected to be presented.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending September 27th:

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—											
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Whooping-cough.			
New York, N. Y.....	Sept. 21.	1,582,077	683	..	..	..	..	18	3	10	..	..	..	..	8
Chicago, Ill.....	Sept. 21.	1,100,000	352	..	..	..	..	29	9	22	..	..	..	..	5
Philadelphia, Pa.....	Sept. 21.	1,040,245	377	..	..	..	..	20	5	9	1	..	..	..	..
Brooklyn, N. Y.....	Sept. 21.	834,007	325	..	..	..	..	5	..	17	..	..	..	..	2
Baltimore, Md.....	Sept. 21.	500,343	156	..	..	..	..	4	..	..	..	..	..	..	..
St. Louis, Mo.....	Sept. 21.	450,000	165	..	..	..	..	5	..	7	..	..	..	..	..
Cincinnati, Ohio.....	Sept. 21.	325,000	94	..	..	..	..	4	1	10	..	..	..	..	..
New Orleans, La.....	Sept. 14.	254,000	107	..	..	..	..	..	..	2	..	..	..	..	..
Detroit, Mich.....	Sept. 14.	250,000	74	..	..	..	..	..	1	4	..	..	..	..	1
Cleveland, Ohio.....	Aug. 10.	235,000	130	..	..	..	..	2	1	3	1	1	..	..	1
Cleveland, Ohio.....	Aug. 17.	235,000	102	..	..	..	..	4	2	7	..	..	..	..	..
Pittsburgh, Pa.....	Sept. 21.	230,000	83	..	..	..	..	11	3	8	..	..	..	..	..
Louisville, Ky.....	Sept. 21.	227,000	52	..	..	..	..	2	..	1	..	..	..	..	..
Rochester, N. Y.....	Sept. 14.	130,000	42	..	..	..	..	1	..	..	..	..	..	..	..
Providence, R. I.....	Sept. 21.	127,000	46	..	..	..	..	1	..	1	..	..	..	..	1
Indianapolis, Ind.....	Sept. 20.	124,450	32	..	..	..	..	1	1	2	..	..	..	..	..
Denver, Col.....	Sept. 20.	100,000	31	..	..	..	..	7	1	..	..	..	..	..	1
Toledo, Ohio.....	Sept. 20.	89,000	21	..	..	..	..	1	..	2	..	..	..	..	..
Fall River, Mass.....	Sept. 21.	69,000	29	..	..	..	..	2	..	..	..	..	..	..	1
Nashville, Tenn.....	Sept. 21.	65,153	21	..	..	..	..	..	..	..	..	..	..	..	..
Charleston, S. C.....	Sept. 21.	60,145	50	..	..	..	..	1	..	..	..	..	..	..	..
Lynn, Mass.....	Sept. 21.	50,000	20	..	..	..	..	..	..	..	..	..	..	..	..
Manchester, N. H.....	Sept. 14.	42,000	16	..	..	..	..	..	1	2	..	..	..	..	..
Portland, Me.....	Sept. 21.	42,000	20	..	..	..	..	..	..	..	..	..	..	..	..
Galveston, Texas.....	Sept. 13.	40,000	9	..	..	..	..	..	..	..	..	..	..	..	..
San Diego, Cal.....	Sept. 11.	32,000	6	..	..	..	..	..	..	..	..	..	..	..	..
Yonkers, N. Y.....	Sept. 20.	31,000	9	..	..	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.....	Sept. 21.	30,000	8	..	..	..	..	..	2	..	..	..	..	..	..
Albany, N. Y.....	Sept. 21.	26,000	4	..	..	..	..	..	..	1	..	..	..	..	..
Haverhill, Mass.....	Sept. 21.	25,000	7	..	..	..	..	..	..	..	..	..	..	..	..
Keokuk, Iowa.....	Sept. 21.	16,600	2	..	..	..	..	..	..	..	..	..	..	..	..
Pensacola, Fla.....	Sept. 14.	15,000	5	..	..	..	..	1	..	..	..	..	..	..	..
Pensacola, Fla.....	Sept. 21.	15,000	8	..	..	..	..	1	..	..	..	..	..	..	..

The New York Academy of Medicine.—At the next meeting of the Section in Surgery, on Monday evening, the 14th inst., Dr. B. Farquhar Curtis will read a paper on "Knots, Ligatures, and Sutures," and cases will be presented illustrating the surgery of the hand.

Effects of Prolonged Chloroform Anæsthesia.—"Some observations, made about two years ago by Dr. Ungar, pointed to fatty degeneration of the heart and liver as the cause of death after repeated prolonged administration of chloroform. Further experiments on dogs have recently been made by Dr. Strassman, which appear to confirm this view. Dr. Strassman found that the first organ to be affected was the liver, then the heart, and after that other viscera. The nature of the morbid change was not a fatty degeneration, but fatty infiltration. The actual cause of death in fatal cases appeared to be the cardiac affection, as in all such a very marked degree of change was found in the heart. In non-fatal cases the morbid change was found to have disappeared in a few weeks' time. When morphine was given previous to the chloroform, less of the latter was required, and, consequently, the changes produced were not so considerable as when the ordinary amount was given. Animals suffering from hunger, loss of blood, etc., were especially predisposed to the morbid changes due to chloroform."—*Lancet*.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the persons sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

SOME PERSONAL OBSERVATIONS UPON
THE ACUTE AND CHRONIC ENLARGEMENTS OF
THE ADENOID TISSUE

AT THE VAULT OF THE PHARYNX,
AND THE MEANS USED FOR THEIR RELIEF.*

By D. BRYSON DELAVAN, M. D.,

PROFESSOR OF LARYNGOLOGY IN THE NEW YORK POLYCLINIC.

THE subject of adenoid hypertrophy at the vault of the pharynx, although not a new topic, is one which has by no means been exhausted. Many points connected with it have yet to be recognized and explained. No apology, therefore, would seem necessary for its study, if to it could be brought new facts, clearer light, or fruitful discussion.

It is not the object of this paper to deal with matters long ago investigated and already fully understood. It is hoped, however, that a few practical suggestions, gained through clinical study and tested in the light of experience, may be added to the present stock of information bearing upon the matter. With the history of the subject and with the already recorded experience of others it will be unnecessary, for the most part, for us to deal; nor can the usual categorical arrangement of matter be made, since the points to be presented are more or less disconnected, independent, and fragmentary. Still, it has seemed desirable that they should be collected and thus presented at once.

The material presented herewith may be classed under three general headings—namely, as relating (1) to ætiology, (2) to pathology, and (3) to treatment. As to the origin and development of adenoids, the theory has generally been accepted that they usually commence to grow during childhood, that they remain stationary during youth, and, finally, that, if left to themselves, they will shrink away and disappear with maturity. Hence it has been taught, so far as they themselves are concerned, that they might be allowed to remain without interference on the part of the surgeon, the disastrous symptoms which are caused by them in the child being the immediate reason for their removal.

While, in a majority of instances, the above assertions are beyond question true, there are, on the other hand, many cases which seem to prove them incomplete, and which in themselves would offer abundant material for special consideration. Indeed, when carefully studied, the exceptions will be found, we believe, to embrace several large and important groups of cases—cases which occur by no means uncommonly, and which are capable of giving rise to annoying and even to serious symptoms.

Again, with regard to the pathology of the condition, much has yet to be learned as to the varieties of deformity which it may show, the relative importance of these varieties and of the symptoms growing out of them, and of the influence which it may exert upon surrounding organs.

In the treatment of adenoids many improvements upon

the methods usually adopted are possible, several dangers are to be avoided, and greater certainty and accuracy of result are to be attained.

And, first, with regard to the origin of adenoids, one of the most important statements quoted above is to the effect that hypertrophy begins in early life.

While, without doubt, many cases originate during early childhood in some one or more of the causes already familiar to us, it now and then happens that a patient will refer the first symptoms of the difficulty to a period later than puberty. Of such cases it is my belief that many are the immediate and direct sequelæ of an attack of diphtheria or scarlatina, most commonly of the former. The structure and pathology of Luschka's tonsil are largely analogous to those of the faucial tonsil. A general condition of enfeeblement, repeated catarrhal attacks, and other well-known causes may result in hypertrophy of the faucial tonsil at almost any age short of middle life, and, to a certain extent at least, the same may be true of the adenoid tissue at the vault of the pharynx. Not alone may it happen, therefore, that the enlarged Luschka's tonsil may not atrophy as the child grows older, but, as has been stated above, hypertrophy may even take place after the period of childhood has been passed. Cases are not uncommon in which enlargement sufficient to cause injurious results has persisted through middle life. The writer lately operated, with marked relief, upon a gentleman aged forty-four. In another patient, a well-known surgeon of over fifty, he has observed a distinct enlargement, dating back to childhood and even now giving rise to troublesome catarrhal symptoms, cough, and reflex irritation.

Among adults, however, he has seen a condition of moderate hypertrophy, most frequently in women of thirty or under. This class of patients are usually somewhat stout in figure, and resemble each other in general type. They may or may not have concurrent disease of the faucial tonsil. They are subject to attacks of catarrh of the upper air-passages. They are apt to suffer from various impairments of digestion. Many of my own cases have been in singers, whose voices have been directly injured in consequence of the above irritation, vocalization being difficult, the notes husky or at least impaired as to their brilliancy, and moderate efforts being followed by fatigue. All of these symptoms are aggravated by the slightest cold. Often the patient is able to locate with considerable accuracy the seat of maximum irritation. Examination of the upper pharynx shows a pharyngeal tonsil which very rarely extends below the upper margin of the Eustachian prominence, but which is distinctly enlarged and congested, and bathed in mucus. The Eustachian prominence, meanwhile, is pressed upon by it, in some cases with injurious force, and while the thickening may be but apparently slight, its effects may be serious. Among other results, impairment of hearing may be quite out of proportion to the amount of hypertrophy present; but it is often, however, wanting. Local topical treatment in these cases seems of little or no avail, while operation is followed by distinct relief.

One of the most interesting phases of adenoid disease is

* Read before the American Laryngological Association at its eleventh annual congress.

that condition in which a temporary enlargement of the tissue at the vault of the pharynx takes place under special excitation, the enlargement subsiding with the disappearance of the cause. As this condition has not been heretofore described, so far as the writer is aware, special attention is called to it. It is well illustrated by the following case, which is exceedingly instructive as explaining a very possible source of error and disagreement.

A young lady of eighteen, blonde, somewhat delicate, but on the whole well developed and in the enjoyment of fair health, was treated by an eminent American otologist during one winter for deafness, with tolerably good results. In the following summer she went abroad. While in London she consulted Sir Richard Dalby, who, making a digital exploration of the upper pharynx, stated that he found there a considerable mass of adenoid growths which, in his opinion, should have been long ago recognized and removed. Sojourning in Paris, the patient was placed under the care of one of the best specialists in Europe, who made a rhinoscopic examination and failed entirely to confirm the diagnosis of the London physician. In the fall she returned to New York and again visited her American physician. He, having heard the testimony from abroad, re-examined the vault of the pharynx and found an abundant hypertrophy. He admitted his failure to find it at former examinations, said that the criticisms of the gentleman in London were merited, and sent the patient to me for operation. In the course of time she appeared. Careful rhinoscopic examination of a pharynx remarkably easy of demonstration revealed absolutely nothing except a decided redness and a very slight degree of thickening at the pharyngeal vault. With this series of successive contradictions the parties concerned were much discomfited.

It was not possible that any of the observers could have made an error in a condition so plain and so easy of demonstration, and it occurred to the writer that some cause based upon an acute attack must have been present at the time when the enlargement was noticed.

Further investigation developed the fact that the patient had contracted a severe coryza both on the outward and the homeward voyage, and that she was suffering from these colds when examined in London, and afterward in New York. Examined before her departure, again in Paris, and finally in New York after the subsidence of the acute symptoms, no appreciable enlargement was present. The hypertrophy, therefore, was due to these acute attacks; it existed during their course, and finally, when they subsided, it disappeared. This phase of adenoid disease does not seem to have been described. Certainly it is so little understood as, in the present instance, to have misled three of the most eminent specialists living. It appears to be analogous to the acute enlargement of the tonsils commonly seen in patients in whom these glands are irritable and liable to swell during attacks of cold. It is a condition capable of causing much annoyance. Perhaps the best descriptive title which could be applied to it is acute recurrent enlargement of the adenoid tissue at the vault of the pharynx.

While cases such as this, in which the subsidence of the hypertrophy is nearly complete, are unusual, the acute enlargement of pharyngeal adenoids already to some extent hypertrophied is a matter of the commonest occurrence, and opportunities for studying it are constantly afforded. The

condition is important, on account both of the temporary inconvenience which it causes and also of the tendency which it manifests to leave behind a permanent enlargement of greater or less degree.

Chronic hypertrophy, as generally met with, is of two tolerably distinct varieties. In the first the adenoid element seems to predominate, while externally the surface of the enlargement is irregular, often simulating a true papilloma. The consistency of this variety is one of its chief characteristics, for it is soft to the touch, friable, easily broken up, and showing a tendency, when torn away, to separate in large, spongy masses. In the second variety the conditions are essentially different. The hypertrophied mass partakes more of the nature of a well-defined tumor, its base being tolerably small, its surface smooth, its consistence firm, and its substance composed more largely of fibrous tissue elements. Operation upon the latter variety is far more difficult than it is upon the former, as its dense structure offers greater resistance to the efforts of the surgeon, which, when successful, result in the detachment of but small fragments of firm tissue, in marked contrast to the large masses which are easily torn away in the variety first mentioned.

The actual amount of hypertrophy present may be no criterion of the amount of occlusion or of irritation which it may cause, for, in some cases, a comparatively small growth will give rise to symptoms of considerable severity. Again, thickening of the tissue at the vault of a degree hardly sufficient to attract attention may indicate the existence of a condition such as described in Case IV, and thus become of great value as a diagnostic sign. Palpation in such cases is not a sufficiently exact means for determining the truth, and recourse must be had to the rhinoscope, aided, perhaps, by the probe, to establish the diagnosis.

Although the general effects of obstructed nasal respiration are sufficiently well understood, there is one series of results which merits more careful attention than it has yet received—namely, the permanent deformities of the bony framework of the nose and hard palate, due primarily, as it appears, to atmospheric pressure and associated with obstruction to nasal respiration. While with the angular upper jaw and high-arched hard palate it is sometimes possible to find a normal nasal septum, the contrary is the rule. Some of the most aggravated conditions of septal deformity are met with in these cases. The well-known experiment of occluding one nostril in a growing rabbit has proved conclusively that marked asymmetry of the nose may result, and there is every reason to believe that similar causes acting in the young child may be followed by like deformities, and that, too, at a very early period in the child's history. That marked deformity of the septum and of the other bony structures of the nose may arise early in life from obstruction to nasal respiration due to adenoid hypertrophy in the naso-pharynx is certain, so that impeded nasal respiration from the presence of adenoids during the period of constructive activity is a constant menace to the healthy development of the osseous structures of the nose. The following case (III), observed by the writer, is instructive as illustrating the truth of the above:

T. M. O., aged three years and a half, a mouth-breather, was found on examination to have a large adenoid which was confined to the left side of the pharynx, the right side being comparatively free. The right nasal cavity was abnormally wide and unobstructed; the left was absolutely occluded, the septum being pressed tightly against the turbinated bodies. The adenoid was removed under chloroform, and it was proposed subsequently to restore the position of the septum by gradual pressure. Meanwhile, however, the child was encouraged to breathe as much as possible through the left nostril. The effect of this, within a few months, was to cause such decided improvement in the position of the septum that special efforts at dilatation seemed unnecessary.

The location of the growth is a matter of considerable importance, not alone with regard to the means used for its removal, but also because of the influence exerted upon the auditory apparatus. While it is not uncommon to find that a very considerable amount of hypertrophy may be attended with little or no impairment of hearing, the converse is generally true. Congestion, deafness, and tinnitus are often present in cases where the amount of attendant hypertrophy is remarkably slight.

In proof of this, the following typical case will serve as an illustration:

Miss S., aged twenty-four, at twenty-one had an attack of scarlet fever, following which she suffered a progressive loss of hearing until the deafness became almost complete. Examination of the tympanum showed a moderate degree of opacity. Examination of the upper pharynx revealed a small amount of hypertrophy of all of the adenoid element of the locality; the tissue at the vault was not so markedly involved as that at the lateral walls of the pharynx, posterior to and a little above the posterior pillar. The enlarged tissue at the vault was removed by slow degrees at repeated sittings by means of the curette, the galvano-cautery, and chromic acid, and was only accomplished after the exercise of much trouble. A fair degree of improvement in the hearing distance followed this, but the best results were not attained until the whole of the offending tissue had been removed from the lateral walls of the pharynx. Subsequent to this the tinnitus vanished and a rapid and gratifying return to little less than the normal hearing distance was accomplished.

To this case might be added the records of many more, all more or less striking. Thoroughness, therefore, is of considerable importance in the removal of these growths, and we are forced to believe that testimony to the contrary is unsafe; although even so careful and accurate an observer as Dr. Hooper states that, in his belief, it is not necessary to be too energetic, or to imagine that every particle of the growths must necessarily be brought away. The principal object of the operation, he says, is to establish free nasal respiration. If this be effected, a small amount of adenoid tissue left behind may not do harm. The vitality of the remaining tissue is probably destroyed, and it will atrophy. The growths do not recur after removal.

With these opinions, as applied to certain cases at least, experience has forced us to disagree, for, as we have just seen, the establishment of free nasal respiration is by no means the only end to be attained, although we may freely admit that it is the principal and most important one.

As is now well known, the idea that a partial removal

of the faucial tonsil will be followed by atrophy of the part left behind is, generally speaking, incorrect. As a rule, only so much will ultimately disappear as has been taken away by the surgeon. The same appears to be the case with Luschka's tonsil. In several cases which the writer has had an opportunity to examine at intervals for several years after operation, the tissue left by him at the time of the operation has remained, going through the same processes of congestion under the influence of attacks of cold and of improvement under favorable conditions which were observed in the original growth. From the history of such cases as the one exemplified in Case II, in which the injurious effects of even small hypertrophies are shown, it seems worth while to insist that operations for the removal of adenoid tissue of the upper pharynx should be thorough and complete. If, as often happens, the thorough removal of the tissue is not easily accomplished in one operation, there can be no impropriety in so informing the parents and in operating again. At least, the patient should be occasionally examined, and the case not abandoned until the removal of all offending tissue has been radically effected. Failure in the above precaution may seriously invalidate the result of a really good operation and reflect unmerited discredit upon the operator. It is impossible to overestimate the importance of this precaution, to which fact your attention is particularly called.

Not uncommonly the subjects of this disease are the children of tuberculous parents. Indeed, the frequency with which it is found associated with a tuberculous history is somewhat remarkable. Hereditary syphilis, too, is responsible for many cases, some of the worst which have come under the observation of the writer having been in the children of syphilitic parents. This, of course, is no more than would be expected, as the hypertrophy of the pharyngeal adenoid tissue is but another expression of the general strumous condition under which such patients labor. In operating upon pharyngeal adenoids, the greatest difficulty seems to be in the thorough removal of the tissue anterior to the vault and just above the roof of the nasal cavities, and of that upon the lateral walls in the region of the fossa of Rosenmüller. Particular attention should be paid, therefore, to these localities, and, if necessary, any remaining tissue subsequently removed.

Jelenffy and others have referred to the danger of fragments of detached tissue falling into the larynx and thus causing asphyxia. While this might happen in the course of an operation done with the ring-knife or curette, with the forceps carefully used it would not be likely to occur. It is far more probable that dangerous obstruction of the larynx should arise from the impaction of blood-clots in the glottis, an accident which has happened in the experience of the writer, with startling although not with serious results.

In operating, great care should be taken not to wound the healthy parts, as laceration of the mucous membrane is liable to be followed by persistent bleeding, if not by more serious results. In the use of the forceps, particularly with the patient in the recumbent position, it is absolutely necessary that the uvula be held carefully away from the grasp

of the instrument. Failure to observe this precaution may result in the seizure and injury of this important organ, if not in its destruction.

An English writer advises that the patient be examined the day after the operation and all ragged ends and fragments of mucous membrane found hanging from the posterior wall of the pharynx carefully trimmed away with a pair of scissors! Such a procedure should never be necessary, since it does not seem that the condition mentioned could arise excepting from great carelessness in operating. Nevertheless, the writer has seen one case—that of a young woman of twenty-two, a slender blonde, in whom the pharynx was remarkably narrow antero-posteriorly and the mucous membrane delicate—where the removal of a fragment of adenoid tissue from the vault by means of a modified Loewenberg forceps was attended with the loss of a strip of mucous membrane from the median part of the posterior pharyngeal wall of about an eighth of an inch in width and extending downward to a point below the uvula. At a subsequent sitting the same accident threatened, and was only prevented by the employment of unusual care. It is possible, therefore, that, while with the exercise of ordinary skill stripping of the mucous membrane from the posterior wall of the pharynx should not occur, in exceptional cases it may be necessary to observe unusual precaution in order to avoid it. The accident may be best prevented by following up the detached mass with the finger inserted into the upper pharynx, and, while pulling forward with the forceps, tearing away from below with the finger-nail any adherent fragments of tissue. The question of hæmorrhage after these operations is important. Occurring violently during the operation, it will be an effectual impediment to the progress of the work, but can always, of course, be recognized.

The appearance or continuance of bleeding after the operation has been completed, and, possibly, after the departure of the physician, is a far more serious matter, and one which might easily lead to disastrous results. Fortunately, cases in which either of these things has happened are unusual, and, if recognized, the bleeding should be tolerably easy to control.

Thus far only five instances have come to the notice of the writer. In one child, a victim of hæmatophilia, fatal hæmorrhage was caused by the simple exploration of the pharynx with the finger—certainly a most unusual accident. In another case a small forceps was introduced into the pharynx for purposes of diagnosis, and one small mass of tissue removed. Bleeding continued for two days. Dr. R. J. Hall informs me that he was called upon to control a severe hæmorrhage in a mulatto of nineteen from the vault of the pharynx, following an operation upon that part, and succeeded in doing so by means of an astringent tampon.

My friend Dr. George A. Richards operated upon a young boy in whom profuse bleeding occurred during the operation and continued after it until syncope supervened. The child was exsanguinated, and remained in an anæmic condition for some time. In one of my own cases, in a delicate boy of four, bleeding was profuse, and the effects of the operation were felt for two months.

There can be no question that the forcible removal of adenoids is a painful operation. From all patients, old as well as young, comes the same testimony. Time and again the writer has operated upon adolescents and upon adults at repeated sittings. Time and again he has had the testimony of intelligent subjects to the effect that the act of operating was exceedingly painful. Time and again he has seen the same patient suffer for a number of hours after each sitting with neuralgia, headache, and sometimes with pain in the ears. He has found it not uncommon for a patient to run down under the shock of repeated operations to such an extent that the nervous system was severely impressed.

By reason of these considerations he has been forced to believe that in a large number of the more severe cases operated upon anæsthesia is a most valuable adjunct. Not that the risks of anæsthesia should be incurred needlessly in a patient of good nervous force and in whom the amount to be removed is small, but that, on the other hand, the great majority of patients suffering from the complaint under discussion are abnormally weak, timid, and nervous. They are difficult to operate upon, the work is apt to be imperfectly accomplished, and the results are by no means so satisfactory as when full opportunity is given to explore the pharynx at leisure, and to remove at once every vestige of adventitious growth that can be reached.

What particular anæsthetic should be used must be determined by each individual operator. Of late the writer has had chloroform administered, and, with an experience of about sixty cases, he is able to speak favorably of it. Its special advantages over ether in this operation, aside from its quickness, lack of irritating qualities, and less nauseating effects, are its ease of administration during the operation, and the fact that it does not cause the same abundant secretion from the faucial region of viscid mucus which is excited by ether, and which in many cases becomes a cause of much embarrassment during operation.

The writer has seen one case in which the removal of an adenoid from a strumous boy of fifteen was followed by a mild double otitis, which subsided after a few days. He has known the same accident to follow the work of other operators. Its possibility, therefore, should not be lost sight of.

It is highly important, when once the necessity for operating is recognized, that the operation be performed without unnecessary delay. The choice of time for operating, however, is a matter of some importance, as the operation may be followed by more or less general depression and the patient be exposed, therefore, to greater risk from the diseases most dangerous to children. The late spring and early summer offer the greatest immunity from danger, while the late autumn and winter are the most unfavorable periods. Any possibility of infection from diphtheria should be most rigorously avoided.

In a case operated upon by the writer in a large apartment house, in which a marked rise of temperature persisted for several days after the operation, with other ill-defined but threatening symptoms, it was finally discovered that an epidemic of diphtheria was present in the house.

The immediate effect upon the voice of an operation may be disappointing, the faulty pronounciation being retained. This is sometimes due, not to imperfect removal of the pharyngeal obstruction, but to a condition of paresis of the velum which has been caused by the presence of the adenoid, and which may persist for some time after its removal.

Finally, as to the general conduct of these cases it must be insisted that they are surgical, and therefore that they should be treated upon correct surgical principles by men well versed in these principles, both in theory and in practice.

I consider it most important that, after a radical operation for the removal of adenoids, the patient should remain in bed until the shock of the operation is evidently past; that he be placed upon a course of tonics, particularly iron and quinine, until any loss of blood shall have been made good and any depressing result of the operation done away with; and, finally, that it be not taken for granted that every possible benefit has been gained with the completion of the operation. Patients should be examined after recovery from the operation, and not only should the imperfect removal of tissue be remedied, either by surgical or topical means, but the attendant catarrhal symptoms which may remain should be treated, and the general condition of the patient investigated and, if necessary, improved. In this way the best ends may be secured, and what has been a good operation be made to yield finally the most brilliant results.

The all-important question, What degree of hypertrophy constitutes a pathological condition? is one which must arise in the experience of every careful observer, and which has never yet been satisfactorily answered, particularly when it is remembered that simply the removal of obstruction is by no means the only end to be attained. Certainly, an enlargement sufficient to give rise to troublesome symptoms should be regarded as important, and, if not remediable by topical means, should call for the employment of those of a more radical nature.

NOTE ON THE GALVANO-CAUTERY IN THE TREATMENT OF HYPERTROPHIED TONSILS.*

By CHARLES H. KNIGHT, M. D.

In a paper on this subject, read at a meeting of this association two years ago, the following opinion was expressed: "Galvano-cautery should be reserved for a comparatively small proportion of cases, including those in which the hæmorrhagic diathesis is present or suspected, those in which vascular anomalies may be recognized, those in which anatomical conditions prevent a sufficiently complete excision of the organ, and those in which the use of a knife is positively declined." With regard to adults it was recommended that "a patient above the age of twenty years be allowed his option after a fair presentation of the risks and advantages of the two methods"—namely, cauterizing

and cutting. During the last two years my experience in eighteen selected cases in hospital and private practice has, on the whole, confirmed my original conclusions. As to cauterizing tonsils in young children, it may be said that it is next to impossible to persuade children under ten years of age to submit to galvano-puncture often enough and to a degree sufficient to accomplish much, and the use of the cautery-loop is in them out of the question, except under general anaesthesia.

The experience of Saint-Germain,* who is a rather extravagant advocate of ignipuncture, has been decidedly different from my own. The ages of his patients, as recorded in twenty observations, range from two to fifteen years, but it is noticeable that in his younger cases a single cauterization sufficed. The inference is natural that he is satisfied with less complete results, especially since he remarks that tonsillotomy should be practiced only *when the tonsils meet in the median line*. It seems to be accepted in this country that tonsils which do not reach this degree of enlargement may be sources of irritation and should be removed. Paul Balme,† who follows the teaching of Ruault, advises the amygdalotome for children of from two to five or six years. After the latter age he finds electro-puncture practicable. He is in the habit of transfixing the tonsil at four or five places with an electrode brought to a white heat, the cauterizations being repeated three to six times, at intervals of ten or twelve days. To one who has witnessed the terror of a child who has once felt the heat of the cautery point when it is proposed to repeat the experiment, this statement seems almost incredible. In my opinion the guillotine is far preferable in children, and in those of highly nervous temperament it should be used under nitrous-oxide gas or ether, the anaesthesia with the latter not being profound. For these cases nitrous oxide is the ideal anaesthetic. Its effect is rapid, recovery is prompt, and the period of unconsciousness is ample. Thus, much of the shock attending an excision of the tonsils may be avoided, the bleeding is not appreciably more, and the operation may be done with equal thoroughness. In older children and in adults the galvano-caustic point and knife, and more particularly the cautery-loop, are of service in the treatment of hypertrophied tonsils. My attention has been especially directed to the effect of cocaine, and to a comparison of the degree of pain experienced by the same individual under different methods of operating on either tonsil. It is very difficult to estimate pain. One patient will declare that excision of a tonsil does not hurt at all, while another will make the most vehement demonstrations. But at least an approximate idea of the pain may be formed by adopting a different operation for the second tonsil.

This procedure was resorted to in five of my cases. In every case cocaine in ten-per-cent. solution was applied on a pledget of cotton or sprayed into the fauces. In one the cold-wire snare was used on one side and the galvano-cautery loop on the other. In this case the pain of the cold-wire operation was so intense that, when nine days later the

* Read before the American Laryngological Association at its eleventh annual congress.

* "Rev. des mal. de l'enfance," 1884, ii, 520; see, also, "Trans. of the Ninth Internat. Med. Congress," vol. iii, p. 457.

† "De l'hypertrophie des amygdales," Paris, 1888.

removal of the second tonsil with the cautery loop was undertaken, the patient, a young woman of seventeen, was so nervous and restless that great difficulty was found in applying the loop. Consequently, the cold-wire operation proved to be the more radical. There is no question, however, that in this case the hot wire was less painful, more rapid, and was followed by less inflammatory reaction than the cold snare. After the latter the pain persisted, and for several days the formation of a phlegmon was threatened.

The histories of the four remaining cases, in which the cautery loop and the amygdalotome were used, are very similar. That of my most recent case will answer for all.

The patient was a colored girl, twenty-four years old. The right tonsil was removed completely two weeks ago with the cautery loop. Five days later, reaction having subsided, the left tonsil was excised with the tonsillotome. The contrast in the behavior of the patient on these two occasions and in the subsequent appearance and action of the wounds was not remarkable. The base of the first tonsil was cut through by the hot wire in less than a minute, the patient offering but very little objection, and not a drop of blood being lost. The soreness and pain in swallowing began to subside at the end of thirty-six hours, the patient meanwhile using a carbolyzed gargle at short intervals. On the third day there remained a little œdema of the uvula, and there was considerable inflammatory swelling of the pillars of the fauces. Except for the slough, which was beginning to separate and which involved to a slight extent the posterior pillar, the parts presented precisely the appearance expected after an excision of the tonsil. The left tonsil, considerably smaller than the right, was removed with Mackenzie's amygdalotome on the fifth day. Hæmorrhage at the time was much less than usual. The patient asserted that the pain was much more than with the preceding operation. In this case there was no subsequent bleeding, the soreness was of rather shorter duration, and the wound healed more quickly, which may be attributed to the relatively smaller dimensions of the second tonsil.

As a general rule, it is impossible to distinguish any marked difference in the sensitiveness of the stump or in the rapidity of the healing process.

These tests have satisfied me that the pain caused by the cautery-loop operation is not so much greater as to constitute a valid objection. Electro-puncture is in the aggregate more painful because of the frequent repetitions required, and is adapted only to cases in which for any reason the snare can not be used. By the use of cocaine it seems to me that but little, if anything, is gained beyond securing more complete rest for the parts and so facilitating the adjustment of the wire loop. In some cases even this effect of cocaine is defeated by the nausea which the drug is apt to produce.

In the technique of the galvano-cautery operation there is but little new. For the purpose of tucking the loop around and behind the tonsil, and holding it in position until the wire can be tightened, a little two-pronged instrument made of copper, so that it may be bent at any desired angle, and held firmly in a handle, will be found very convenient. It is a good plan, the moment the loop is seen to encircle and be in contact with the tonsil, to turn on the current for an instant. The wire adheres and may be tight-

ened at leisure without danger of slipping or being thrown off by the act of gagging. In spite of the utmost care, the pillars of the fauces are in some cases more or less damaged, but the injury is generally superficial. In many cases, owing to the shape of the tonsil, the adhesion of a pillar, or the intolerance of the patient, it is very difficult to include more than half of the tonsil. These difficulties may be in part overcome by preliminary training of the patient and by thoroughly releasing an adherent pillar.

Additions to the literature of this subject have been rather numerous. The galvano-caustic method has been approved by Dr. F. H. Potter,* of Buffalo, in a paper read before the New York State Medical Association, and in a short communication from Dr. Jonathan Wright,† of Brooklyn. Dr. E. G. Kegley ‡ reports a case of extreme tonsillar hypertrophy in a man forty-three years old, in whom spasmodic attacks resembling hay fever, with the additional symptom of profuse salivation, were entirely relieved upon removal of the tonsils with the galvano-cautery loop. Noquet § reports a case of chronic abscess in the stump of an excised tonsil cured by use of the galvano-caustic point. This author, as well as Heryng and Charazac, expresses a preference for the galvano-cautery in removing enlarged tonsils. On the other hand, Moure prefers the amygdalotome, and he professes to have seen in children the development of retropharyngeal and circumtonsillar abscess after the use of the galvano-cautery. Three cases similar to that of Noquet have been observed by Garel,|| who strongly recommends the cautery in hypertrophied tonsils, especially in cases showing a tendency to suppurative inflammation. Kafemann ^ recommends the galvano-cautery, while G. Dodart ¶ maintains that amygdalotomy should be employed but rarely, on account of the numerous accidents possible, and that ignipuncture is the operation of choice. Barette †† describes the methods of operating, and expresses a decided preference for the thermo-cautery or the galvano-cautery as compared with the bistoury and the amygdalotome. In a paper by Ouspenski,‡‡ on "The Treatment of Enlarged Tonsils in Children," based on fifty-two observations, the method by galvano-puncture is highly praised; and Valat,§§ after noticing the fact that hæmorrhage following excision of the tonsils, rare in children, is by no means infrequent in adults, advises the use of the thermo-cautery.

Wilhelm Roth,** of Fluntern, advises the employment, under cocaine in ten- to twenty-per-cent. solution, of the finest point of the thermo-cautery inserted at three or four

* "Med. News," Philadelphia, March 10, 1888.

† "Med. News," Philadelphia, March 24, 1888.

‡ "N. Y. Med. Jour.," Sept. 22, 1888.

§ "Arch. de laryngol., de rhinol.," etc., June 15, 1888.

|| "Ann. des mal. du larynx," etc., January, 1889. See also Ricordeau, "Thèse de Paris," 1886; Gache, "Thèse de Paris," 1888; and Chauveau, "Thèse de Paris," 1888.

^ "Deutsche Med.-Ztg.," No. 23, 1889.

¶ "Thèse de Bordeaux," 1888.

†† "Rev. gén. de clin. et de thérap.," Oct. 22, 1888.

‡‡ "Ann. des mal. de l'oreille, du larynx," etc., July, 1888.

§§ "Gaz. des hôp.," No. 132, 1888.

** "Lancet," London, Feb. 16, 1889.

places in the tonsil, the operation being repeated four or five times at intervals of two or three days. He finds this sufficient to reduce the tonsils to their normal size, with scarcely any pain and without the risk of troublesome hæmorrhage, which, contrary to my own experience, he says is not uncommon, *especially* in young children.

In commenting on the views of Saint-Germain, Delavan* expresses his disagreement for three reasons: 1. The process is far more difficult and painful than amygdalotomy. 2. There is not an authentic fatal case of hæmorrhage after tonsillotomy on record. 3. While he has seen and performed hundreds of amygdalotomies without having known diphtheria to occur in the wound in a single instance, he has known four cases in which the disease immediately followed the use of the galvano-cautery. The first objection should be modified to read "*somewhat* more difficult and painful." It is true that the galvano-cautery operations, at least those with the loop, require more time and trouble, possibly more manipulative skill, and somewhat elaborate apparatus. The second point may be admitted, and yet it is not much comfort to a patient who has lost a pint or so of blood, who is just on the verge of syncope, and who is already frightened almost to death, to be told that no one has ever yet bled to death after amygdalotomy, and he probably will not. All the statistics in the world will not reassure him. With regard to diphtheritic infection, it seems to me unreasonable to suppose that the germs of disease are any more likely to invade the system through a wound covered by an eschar than through an open wound left by amygdalotomy. The period of incubation in diphtheria varies from two days to a fortnight,† fresh wounds being earliest affected, and constitutional symptoms often preceding the appearance of the local lesion. It seems perfectly fair to assume that in these cases of immediate diphtheritic development, such as Delavan refers to and as cited by Saint-Germain,‡ the patient was already under the influence of the disease at the time of the operation. Such an accident has not occurred with either operation in my experience, and, indeed, it seems to me quite as apt to occur in the condition of the tonsils for which their removal is demanded as it is after any operation whatever. An enlarged tonsil, its crypts deepened and distended by inspissated and decomposing secretion, would seem to offer most excellent soil for the lodgment of disease germs.

One of the strongest arguments in favor of the galvano-caustic method is the fact that it insures against hæmorrhage, but a case recently reported by Werner# would seem to show that our contention in this particular must not be too positive. His patient began to bleed five days after treatment with the galvano-cautery, and is said to have been saved by compression of the carotid for ten days. Not having access to the original, I can not give further details. In the case of Capart, mentioned in my former paper, hæmorrhage was undoubtedly provoked by immoderate

use of the voice. I suspect that to this cause, and perhaps indiscretion in diet, may be added as possible factors deficiency of heat and excessive traction on the loop during the operation. It is easy to conceive that in such case the resulting eschar might fail to give sufficient protection to the stump of the tonsil. Violent exercise, loud talking or singing, or an irritating particle of food might easily be the exciting cause of hæmorrhage. We can not too closely observe precautions in these particulars, especially when we have reason to mistrust the caustic effect of the wire.

My zeal in advocating this method of treating hypertrophied tonsils is tempered by two facts, which I at least feel obliged to admit. First, burning, if not more painful, is at any rate more disagreeable to most people than cutting; second, the prevalent dread of hæmorrhage after excision of the tonsils is not warranted by clinical experience. I am more firmly convinced that the danger of hæmorrhage after the use of Mackenzie's amygdalotome, which is by far the most convenient, most efficient, and safest cutting instrument, has been unduly magnified. This is especially true of children, and in adults it seems to be the rule that bleeding ceases on the occurrence of syncope, if not before, and seldom recurs to an alarming extent. This statement has been verified by three cases which have come to my notice within the last eighteen months, by the case reported by Fuller,* in which the common carotid was tied without effect, and by numerous other instances. Excluding hæmatophilia, which is under any circumstances an alarming condition, we are not likely to meet with bleeding after amygdalotomy which need cause any anxiety. Perhaps Mackenzie's statement for tanno-gallic acid as a hæmostatic is exaggerated. Should it fail, however, without wasting time with other styptics, so justly condemned by Levis, we may confidently resort to the use of the tenaculum as suggested by that writer,† or the loop of the cold-wire snare may be applied, possibly with the aid of a transfixion needle. Cases in which ligation of the external carotid artery will need to be considered should become exceptional. The researches of Zuekerkandl‡ have proved that the course and relations of the internal carotid artery must protect it from injury at least in guillotine operations. No one should be deterred from securing the relief afforded by amygdalotomy by fear of bleeding to death. Delavan asserts that there is not on record a single case of fatal hæmorrhage after the use of the guillotine for simple hypertrophy. The detrimental effects of enlarged tonsils are too obvious to be ignored. The benefit following their removal is with many of us a matter of almost daily observation. The risk of the operation itself need excite no apprehension.

At the same time the limited class of cases included in my enumeration must in some way be provided for, and for these the galvano-caustic method seems to combine the most desirable with the fewest objectionable features. The removal of a tonsil in this way requires a little more time,

* "Annual of the Univ. Med. Sci.," 1889, vol. iv, p. 13, E.

† Jacobi, "Treatise on Diphtheria," p. 67.

‡ "Rev. des mal. de l'enfance," 1884, ii, 520.

"Württemberg. med. Corr.-Blatt," No. 31, 1888, in "Jour. of the Resp. Organs," January, 1889.

* "Am. Jour. of the Med. Sci.," Apr., 1888.

† "Med. News," Philadelphia, Dec. 8, 1888.

‡ "Med. Jahrb.," Wien, 1887, p. 309.

but in the majority of my cases the pain has not been excessive, the extirpation has been thorough, and the final result in every respect satisfactory.

20 WEST THIRTY-FIRST STREET.

ANGULAR CURVATURE. THE MECHANICAL REMEDY.

By GEORGE H. TAYLOR, M. D.

THE simple and abiding faith commonly accorded to instruments professedly adapted to correct misshape of the spinal column is a legitimate matter for examination and criticism. Such instruments, it is believed, are recommended with more fervor than accuracy of knowledge, both as to the actual needs of this unfortunate class of invalids and to the force and mechanical consequences of the devices employed. Instruments to be worn on the person—*supporters*, as they are named from what is wanted of them—are adopted with too much haste, and their use continued for reasons quite opposed to those that ought to prevail. The nature and the gravity of this class of cases render it due that inquiries like the following be satisfactorily answered before the utility or necessity of “*supports*” is conceded. Are the mechanical contrivances commonly supplied for the purpose adapted to produce the effects asserted and desired of them? Do the principles they involve accord with or do they oppose and subvert the uncompromising facts and principles of physiology embodied in the vital organism? Such inquiries demand intelligible and satisfactory answers. The present purpose is, accordingly, to place before the reader the mechanical, physiological, and pathological principles involved, the consequences accruing to the vital organism in general and to the column in particular from the use of this class of remedies.

An intelligible presentation of the subject requires a statement of the leading causes concerned in the development of the columnar angle, so that the adaptation or want of adaptation of the means usually employed to the ends in view may be clearly seen. The column acquires its morbid form in consequence of defective function of the general and especially of the spinal muscles. No one supposes that columnar deformities occur otherwise. The too feebly sustained column is dragged forward and downward by the uncounterpoised weight of the upper part of the trunk and head. Gravitation curves the column sharply forward, and thus unsettles equilibrium of the body. The necessity of keeping the center of gravitation within the base compels other changes of the shape of the column. A corresponding forward projection of the *lower* end of the column is made necessary; this throws backward the intermediate or central part of the column. Were these last-mentioned changes not to occur, the person would be unable to stand erect. The nature and necessity of the case seem to imply that some effort on the part of the subject may be required to maintain an erect posture, and that such effort must be expended in urging the central part of the column backward, thus increasing the deforming tendency.

The purpose of instruments to be worn upon the per-

son is simply to force back the deviating portions to a position approximating the natural axial line of the column, and to keep them there by mechanical force. This remedy does not regard the pathological, but only the mechanical problem. The pre-existing and the present sources of the affection are neglected, and the pathological conception is reduced simply to exterior appearances. Even the superficial effects are equivocal and untrustworthy. The instrument is adapted to *conceal* rather than to *remove* the external manifestation. The instrument is believed to have a remedial purpose quite beyond the scope of its power and adaptation to fulfill; the confidence which is placed in it diverts attention from true remedies directed to the sources of the affection, and thus it is a means of affording a false security quite inimical to the true interests of the patient.

It becomes apparent, therefore, even upon a superficial survey of the subject, that in seeking remedies for the angular column two distinct considerations are encountered—the *mechanical* and the *physiological*. The mechanical is regarded as paramount, at least as relates to practice. There are many facts indicating that this is the *reverse* of the natural and true order, and that ill consequences of a serious and permanent character flow from this misapprehension. Attention will now be directed to some of these consequences.

Mechanical Features of “Supports.”—The functions or work desired of apparatus to be worn on the person are those of such partial lifting or urging upward of that portion of the body *above* the affected points as shall relieve the affected vertebræ from the pressure to which they have been exposed. To this purpose is added that of applying force and counter-force to the points of the column which deviate from the correct axial line, so as to press them back to that line. The additional purpose of preventing motion, both of the column and of its muscles, is sometimes avowed.

The mechanical problem is that of overcoming the aggregate resistance of weight and rigidity of structural parts by mechanism carried on the person. The means resorted to is not dissimilar to what would be required to straighten wood or metal. The evident inadequacy of the means to the ends is expected to be compensated for by persistency in wearing the instrument. The benefit expected is relegated to the distant future, while the idea that a removable cause exists, or has existed, is seldom practically entertained.

The varieties of instruments provided by orthopædists are legion. In scarcely any direction has there been shown greater prodigality of invention. This fact indicates difficulties of uncertain nature not yet overcome—some important factor of the affection to be provided for. It is to be noted that this wealth of invention is expended in details, and therefore fails to extend a knowledge of principles involved in these cases. The organism is treated by all alike as an inert substance, susceptible of being molded at pleasure. The general purpose of instruments being mechanical, it will be necessary to subject the more usual adaptations found in the different varieties to a somewhat critical examination, to learn to what extent these adaptations are capable of complying with their purposes, and what are the ultimate consequences to the form of the column.

The first inquiry relates to the value of mechanism to prevent the weight of the upper part of the body—the part above the affected vertebræ—from resting upon them, and to resist the tendency of the stature to become shorter. The plainest and most typical of the adjustments for this purpose is the *crutch* designed to lift the body, or at least some part of its weight, by upward pressure under the arms. Whatever form be given the instrument, the top of the crutch must be continued downward through its staff; this must have a firm connection with a band about the pelvis. Thus the weight falling on the crutch is transmitted to the legs through another than the columnar or normal channel. It is evident that, if the band moves or shifts its position, the supporting purpose is worse than defeated; the patient leans upon an insecure and uncertain support and goes down with it. This consequence is obviated only by engaging the band with the top of the pelvic bones, a difficult thing seldom successfully accomplished.

The proper mechanical details being present, it is assumed that the elongation of the staves of the crutches produces the effect of urging the shoulders upward, and that the head, neck, chest, and the upper part of the column necessarily follow, and are practically *raised* by such extension of the staves of the crutches. It is assumed that a part, at least, of the weight is sustained, and that compression is diminished at the point where loss of vertebral substance is indicated by the morbid form of the column. The weight of the above named parts is, it is taken for granted, transmitted to the pelvis through the two staves at either side of the body, instead of through its normal channel, the column. The effect of this mode of sustentation is assumed to inure to the advantage of the column.

The above-named assumptions are, in the main, mechanically erroneous. The immediate and direct consequence of mechanism having the action and relations stated is quite the reverse of that assumed. Crutches bearing upward under the arms cause the stature to *diminish*, cause *more* compression of the affected vertebræ than is due to normal weight, and cause an *increase* of the columnar angle. These statements will be clearly understood by the reader who duly follows up the necessary explanations and demonstrations. The purpose of the mechanism for lifting the shoulders relates solely to the column; not at all to the limbs, upper and lower, and to the trunk only as it is inseparable from the column. To attain an impartial and full comprehension of the action and effect of *all* instruments which include the above-described purposes, it is advisable to conceive the trunk as divested of limbs, including the bony and muscular appendages of the limbs; the shoulder blades, shoulder muscles, thighs, and glutei muscles—all may be considered as absent. The remaining trunk has an ovoid form, and contains the column in which mechanical changes are desired. The two ends of the trunk thus bereft have a tapering form; they are roughly conical. A straight edge applied to the exterior of the pelvis and to the exterior side walls of the chest marks the sides of triangles; the base of the inferior or pelvic triangle corresponds with the top of the pelvis; the base of the superior or chest triangle corresponds with the central part of the diaphragm.

The weak and uncertain hold of the pelvic band on the pelvis as a base for the support of the crutches (if that were of any consequence, which it is not) is made obvious by the tapering shape of the pelvic bones.

The decidedly conical form of the chest renders the difficulty of securing a reliable connection of the crutches with any part of its exterior still more obvious, even were there no weight of head, neck, chest, and the muscular action, which tends to destroy such connection. With the arms and their appendages replaced, there is an appearance of capability of resistance to the upward thrust of crutches. But the appearance is deceptive. The pressure of the crutches can not reach the shoulders to any effective degree; nor is such pressure or thrust communicated to parts connected with the shoulder joint; it is received and distributed otherwise.

Every one may know the significance of the deep hollows under the shoulder joints. These unfilled spaces are the intervals between large and strong masses of muscles whose junction with the arm-bone below the joint, before and behind, forms and bounds these spaces. The other ends of these muscles (which are chiefly the two pectorals in front and the latissimus dorsi behind) radiate, fan-like, over the chest and are attached mainly to the ribs. Their action is continued by the intercostals to the lower borders of the ribs. It is with the heaviest part of these muscles where their united fibers leave the walls of the chest and pass to the arms that the crutches engage. Under pressure from crutches these masses become consolidated, tense, and resisting, so that the spaces under the shoulders referred to are not obliterated. The whole upward thrust of the mechanism is received by the muscles, and is transmitted by them to the exterior walls of the chest; it is, in fact, converted into an upward pull or traction, urging outward the walls of the chest. This action is as decided and unequivocal as that of a rope over a pulley in lifting a weight. The oblique position of the ribs in the walls of the chest determines and greatly facilitates the mechanical effect of the force transmitted to them through the mechanism. The force is directed to increase the *diameter* of the chest, and, in fact, fulfills that purpose. But the air-space is *not* increased; nothing is effectual for producing that effect but to cause a *need* for more air, which the action described does not. The increase of breadth of the chest is therefore at the expense of its perpendicular measurement. The chest is *widened*, but proportionally *shortened*.

Note now the consequence as respects the spinal column. This column is a component of the posterior boundary of the chest, and inseparable from it. To diminish the height of the chest is to shorten the column. But the column is shortened only by becoming bent. The chest bulges out in front, causing the breast-bone to be displaced and deformed; also behind, causing a similar displacement and deformity of the column, and in the latter superinducing absorption of tissue which is always a consequence of uninterrupted compression of vital parts. The anterior perpendicular measurement of the column is thus permanently diminished. The head and neck necessarily follow—that is, descend in proportion to the bending of the column, and

the stature of the individual is diminished, as the effect of and in proportion to the power of the instrument.

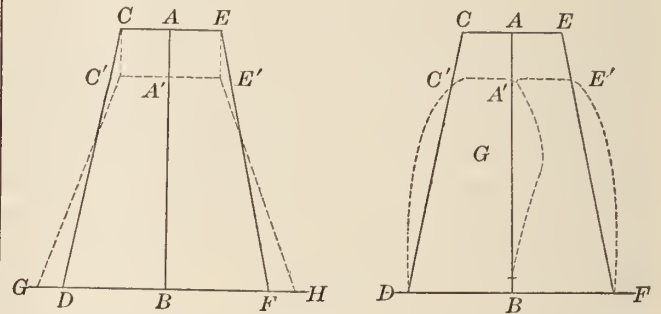
As the foregoing statements are of considerable importance, and will be found applicable in forms of instruments in which the crutch is omitted, it may gratify the reader to be able to demonstrate its mechanical correctness, and in a simple way to silence all cavil on the subject. For this purpose he may cut a narrow slip from a piece of pasteboard, say six inches long, find its center, and break it at that point, but not to separate the two equal parts; these are bent round so as to approach each other, and may be called legs. The two ends, placed upright on a table, represent a triangular figure, of which the table is its base, and the pasteboard slip the two equal sides. The apex of the triangle we may conceive as indicating the head; its two legs, the side walls of the chest; the space between the ends, the base of the chest; while a thin slip of paper attached to the apex, dropping loosely and perpendicularly midway between the legs, indicates the location of the column. Now separate the ends of the legs resting on the table. It is at once seen that the apex, standing for the head, is lowered; its distance from the line between the lower ends of the legs is diminished in exact proportion to such separation, or increase of transverse diameter. Another important fact is conspicuously shown. The perpendicular slip, bisecting the triangular space, is seen to bend in proportion as the distance from the apex to the base is diminished. The superfluous length of the perpendicular becomes diminished by assuming a curved form. If this slip representing the column be notched, and so weakened at any selected point, at just that point an angle appears on diminishing its height, while the parts both above and below remain uncurved. This shows that the yielding of any point protects all the remaining points.

This physical experiment corroborates mechanical principles, the demonstration of which is daily witnessed. Persons are met with whose heads appear as if beaten down, while the shoulders are thrust upward at each side of it; the chest bulges forward, while the spinal column approaches an angular form. This inference is legitimate, and to those who have attended to the subject, unavoidable, that such persons have, at some previous, perhaps distant, period been subjected to mechanical influences which have become permanently recorded in the form of the chest.

The mechanical effects of instruments designed to correct angular deformity of the spinal column may be illustrated by the following diagrams.

Let A B indicate the spinal column, and C D E F will represent the exterior of the chest. Move the point D outward to G, and the point F outward to H. It follows that the line C A E is depressed to the line C' A' E', and therefore that the perpendicular bisecting the figure and representing the position of the column is shortened, as seen at A' B. The same effect on the column is produced if the distance between the side-walls be increased at the middle, or any other part, as will be seen below. The sides C D, E F, instead of remaining as straight lines, are converted into arcs of circles, whereby the points C and E are brought nearer to the points D and F. The points A and

B are therefore brought nearer each other—that is, the distance between them is diminished and the line A B is caused to deviate from the perpendicular at whatever yielding point it may have, as at G. The same changes of form may be considered in their connection with force. Thus, the power required to move D to G and F to H was also employed in changing the horizontal line C A E to C' A' E'.



In the second diagram, the power expended in increasing the space by converting the straight into curved lines was also employed to depress the line C A E, and in causing the straight line A B to become bent at G.

The conclusions to which mechanical principles point, and which are also confirmed by practical observation, are these: The weight of the upper part of the body can not be even partly sustained, nor the spinal column raised and straightened, by apparatus whose mechanical principles and action, worn upon the person, are of the order above shown. It is further made clear that the practical mechanical consequences of such instruments or supporters is to depress or pull down the head, neck, and top of the spinal column, to diminish the stature, and to deform the chest by unnaturally increasing its transverse diameter, especially in the antero-posterior direction, projecting forward the frontal bone (mediastinum) and backward the spinal column. In consequence of these changes, the perpendicular measurement is diminished. All these mechanical consequences are exactly the reverse of those sought and promised. Such grave alterations of the form of the bones are necessarily permanent and irretrievable. These effects arise from radical misconceptions of the mechanical properties and powers of a single feature incorporated in apparatus. We may next turn attention to other features.

The mechanical effects of the crutch appendage of "supporters" have been here described, not because this is the form most in use, but because most typical and easily understood by unprofessional readers. Instruments which omit the crutch are pressed upon the attention of physicians by orthopædists. These often produce the same effects in a covert manner. Instead of obviating, some of these produce additional ill effects. The potential crutch is, in fact, concealed in the construction. These are the more dangerous, because the adverse effects are unsuspected. The probability of the above statement appears when it is remembered that the conical form of the chest and its smooth, bare exterior afford no point by which it may be held while extending force is being transmitted to the de-

formed column, except in such way as forces apart the side-walls of the chest.

In the more common form of construction of the "support," the effect of crutches, or, more correctly, their modified form, is secured as follows: From the base about the hips arise two flat steel uprights—one each side of the column. These are connected at the top, and the connection extends *under both arms* entirely around the top of the chest and fastened by a buckle.

It is easily seen that the posterior upright bars, with the band encircling the top of the cone of the chest, are crutches in disguise. The bars are the staves moved to the rear, and the band is equivalent to the two tops of the crutches joined, and thus continued around the chest. The conical form of the chest causes the band to rest upon the muscular masses under the arms, to push them up, and thus transmit tensile force to the lower borders of the ribs, in the same way as in case of crutches. The instrument is operative in this way to the extent of the pressure of the band (or crutches) upon the combined muscles at the armpits, whether produced by tightness of the band, or by the inevitable leaning forward of the wearer, or motions of the body which produce a tendency to an upward displacement of the apparatus.

This form of instrument has, however, an additional function. The upright bars thus located are not only the means of the upward push under the arms, but are also *levers*. Their fulcrum is the posterior prominence or angle of the column. When the top or frontal band is tightened, compression of this prominence is caused, urging it *inward*, while the pressure of the band urges the top of the chest, and therefore the column, in the opposite direction—both, in fact, toward the medial line from opposite directions. Another, usually broader, band encircling the abdomen below the angle, connecting with the uprights, completes the mechanism for the application of force and counter-force applied for straightening the column.

Apparatus embodying these purposes inflict the following mechanical consequences, in proportion to their mechanical power: The upright bars in close proximity with and at each side of the column virtually destroy its mechanical peculiarities and adaptations. It is no longer flexible or elastic, but rigid. And if the purpose is fully achieved, it ceases to bear the weight of the superimposed parts of the body. The natural mechanical bodily movements are prevented. The inevitable consequence is suspension of the nutrition of the column, by withdrawing the conditions requisite therefor. These relations are morbid, and necessarily superinduce morbid consequences, even in case the column were previously healthy.

The mechanical effect of the leverage of the uprights at the back is likewise to diminish the stature. The wedge-shaped vertebræ are already diminished in perpendicular measurement of the anterior portion. The act of straightening transfers the weight resting on the whole mass to their *posterior* portions—from a whole to a half or less of resisting substance, practically doubling the pressure of the diminished area. This causes the same effects in the posterior that has previously been produced in the anterior por-

tions of the vertebræ, so that absorption occurs in the two parts successively—in one through loss of support and of motion, and again by enforced compression and restriction by the instrument. The affected vertebræ therefore become still further reduced in height, and the stature shortened by the mechanism designed to produce the opposite effect. This effect is, however, transient—in most cases probably too transient to be productive of serious injury. The shortening of the posterior longitudinal measurement is soon followed by still greater shortening of the anterior, due to physiological as distinguished from mechanical influences, and is to be pointed out.

Another cause of vertebral absorption, and consequent shortening of the column, is contributed in a high degree by the compression of the pad, always necessary in this form of instrument, over and near the columnar angle. This point, it will be remembered, serves as a fulcrum. It consequently receives the pressure arising from tightening both the anterior bands, and the weight of the body, or such portions of it as falls upon the instrument. This compression, joined with that before described, can not fail to be productive of very serious local injury at the point least capable of bearing it, since the functions necessary for the maintenance of local health, motion, flexion, and elasticity are restrained.

These mechanical considerations indicate that neither of the leading purposes of supports worn upon the person are adapted to produce the mechanical results expected of them. The transverse measurement of the chest is increased and the perpendicular diminished, the stature shortened, and the acuteness of the angle of the column, instead of becoming diminished, is positively exaggerated. It now remains to point out the physiological consequences of the same remedial method.

Physiological Effects of "Supports."—The ill consequences of apparatus whose mechanical power is exerted in a direction quite opposite to that expected and desired are insignificant in comparison with the physiological deterioration inseparable from its use. Even the superficial and disinterested observer can not but recognize in the levers, bands, buckles, screws, fulcrums, leather, and steel, of which these instruments are constructed, engines of repressive power, antagonistic to the motor purposes and uses of the vital organism. However well adapted a mechanical apparatus may be to mold and reshape inert substances, such adaptation and such power are no proof of efficacy in case of an entirely different class of bodies—those whose welfare is governed by interior causes, whose purposes relate to the interior development of energy, and whose laws refer to the orderly succession of the ingredients of their own composition.

To support the column or any part by mechanism is to supersede functional support, and to that extent to repress those activities from which the *power* of support, by parts to which that duty is assigned, is derived. The capacity for supporting is thus diminished, and is liable to be finally extinguished. Let us see how this principle applies to the spinal column. In health the spinal column exercises the functions of *resistance*, *elasticity*, and *flexibility*. These

functions are either suspended or very much diminished by apparatus. Indeed, the restriction or abolition of these physiological actions is the *purpose* of the instrument. It is even contended that the exigencies of these cases demand the *prevention* of all motion of the column, as though health might be restored in the absence of function in this or in any part of the organism. The idea that flexile motions of the column are incompatible with restoration is theoretical, and lacks any basis of physiological facts for its support. Statements of such an import are made by persons whose experience is too limited and meager to justify them. The physiological fact is that the spinal column *requires* flexile and elastic motions in both health and disease; and that in the latter condition this organ particularly requires the motions natural to it to dissipate the hyperemia present or imminent, and which necessarily occurs in the absence of the local causes for changing the fluids the tissues contain.

Use or function involves *alternations* of compression. This is necessary for the health not only of the column, but of the shafts of the bones of the limbs. Pathological museums often present examples of bones whose use has for some reason—as paralysis or lameness—been for a prolonged period suspended. Examination of such examples demonstrates that the specific gravity of such bones has thereby been diminished, that the spongy portions have increased, and that the lamellar divisions of cells have to a considerable extent disappeared. These facts show one of the consequences of suspended function. The peculiar location and constitution of the vertebral bones, by adding compression to defective activity, superadds *local absorption* at points where such compression is greatest, and distorted form is the result.

Scarcely second in pathological importance is repression of spinal and other muscles superinduced by all instruments worn upon the person. The degree of injury to muscular power is proportionate to the supposed efficacy of the instrument. Any mitigation of ill effects secured by diminishing the mechanical power of the instrument effects no change in its principles of action. These effects are not necessarily rendered less dangerous by becoming more stealthy. The studied effects of this class of apparatus in all its varieties, from the simple corset with springs of whalebone or steel to the posterior levers and bands for raising the column, are those of repression and not of development. Repression occurs wherever parts of the instrument press upon muscles—under the pad at the fulcrum of leverage; beneath the flat bars overlying the spinal muscles; under the bands passing around the trunk; and under the pelvic base band. The continued pressure at these points restrains muscular action and nutrition, and hinders the manifestation of both their mechanical or supporting and their chemical or regenerating functions. It also facilitates the degenerative and absorptive process, and therefore the decline and disappearance of muscular tissues.

Now, it is the failure of the vito-dynamic and the vito-chemical functioning of muscles that superinduces the disease for which a remedy is sought. The removal of the columnar symptom of this disease is clearly impossible,

while the morbid condition on which it depends remains. The inconsistency of supplying remedies which are well calculated to superinduce the affection for whose cure they are prescribed is too apparent to justify comment. Repression of muscular function is equally injurious for the ill and the well. So is excessive functioning. Both the continuance of good health and the recovery, or rather the bettering, of ill health, require proper *adjustment* of conditions to circumstances, not the abolition of conditions.

Respiration suffers from wearing repressive instruments in many ways. One way is through the deformation of the chest, caused both by the crutch and by the lever attachments common with these instruments before shown to increase the transverse, and to the same extent diminish the perpendicular, measurements of the chest. A not less conspicuous and certain effect is that of restricting the extent of the respiratory movements. The action which distends the chest and keeps its walls asunder also prevents the expiratory act from being free and complete. It follows that the amount of air changed at each respiratory act is lessened. This fact is shown and more fully understood under test conditions. The wearer of an apparatus is prevented from making much physical exertion, because exercise increases respiration, and therefore increases the extent of the motions of the walls of the chest—a condition he is unable to fulfill. Attempts to ascend stairs or even moderate activities put the intralld individual “out of breath,” and he is compelled to desist. This experience proves that the oxygen attainable under the diminished extent of respiratory movements is insufficient for the emergency, or, indeed, any emergency requiring it to be increased. No advantage the instrument is reputed to confer can in the least compensate for this disadvantage.

Another way in which respiration suffers is through the diminished demand of the organism for oxygen. Restricted muscular activity diminishes the force of contact of chemical ingredients of the organism, and therefore the extent and degree of the chemic-vital activities of the organism and the amount of oxygen required. The amount of that element taken by the blood from the air of respiration is correspondingly diminished. There can be in the nature of things no remedial substitute for this loss, and the organism consequently suffers permanently in its chemical phase of function. The attentive observer may also notice that the mechanical form of the respiratory act is changed for the worse by supporting instruments. The limitation of the *lateral* respiratory movements compels the substitution therefor of a *perpendicular* form of respiration, in order to secure enough air. The subject is seen not only to breathe laboriously, but at the very top of the lungs, the movement often ascending even to the throat. Now, this mode of breathing involves far more physical labor than the natural mode, because the resistance to be overcome is greater. There is not only the bony frame which bounds the top of the chest, but the weight of all the viscera, which have to be overcome at each respiratory rhythm, when it is forced into the perpendicular form, instead of being allowed the easiest and spontaneous form. Many a poor victim of apparatus has languished under the physical labor of an un-

natural and exhausting respiratory process, which in its natural form is strength-giving. Under this expenditure there remains little or no strength to serve the volitions. The *reserve* capacity of the chest becomes so limited as to prohibit a quickening of pace or in any way creating demand for increased respiration.

It may be further observed that the perpendicular form of respiratory rhythm is liable to be prejudicial to the column, weakened by the withdrawal of muscular support, by the hyperæmia arising from diminished circulation, and by the mechanical disadvantage of the abnormal form. Every inspiratory act now becomes a sort of blow, forcing the chest, and particularly the spine, downward. The natural tendency of this physical cause is to co-operate with the other causes enumerated to increase the angle of the column.

Apparatus modified to diminish their Injurious Tendency.—Numerous examples of instruments are made whose harsher features above pointed out have been in various ways and in all degrees softened, till, in the mildest forms, little or nothing is left but the corset, similar to that with which not a few women delight to repress their powers. The objections above presented, of course, proportionally diminish, but can not be removed while any degree of functional repression remains.

Of late years a form of "supporter" has obtained extensive vogue which curiously blends physiological requirements with the above-described ill effects. This is the so-called *plaster jacket*. Its ostensible purpose is to secure the improved form, forcibly and quickly produced by a retentive incasement. Plaster of Paris, which is easily mixed and used and quickly and firmly sets, and can be renewed as often as desirable, is the typical substance used for the purpose, but many substitutes have been employed for the same purpose. Gutta-percha, raw hide, and felted wool stiffened with shellac, have been applied to the same use, according to the notions of different specialists. The essential peculiarity about this "support" is the mode of applying it, or rather of fitting it to the form of the wearer. The whole body of the invalid is subjected to all the tension or strain of muscle that can be well borne. The processes of being hung or *suspended* by the arms or head, or both combined, are the usual means. We have already seen that other and even more effectual processes are both more agreeable and more successful.

The reader will perceive the very important physiological effects superinduced by the process, which is the essential part of the so-called plaster-jacket treatment. The patient exchanges *continuous* compression of vertebræ for *alternations* of pressure—the muscular inertia for the most vigorous action of every fiber and cell. The hyperæmia of the column is consequently removed, the collateral channels of the circulation are broadly opened, arterial contractility is vigorously resumed, the chest expanded to the utmost, synchronously with the incitation of its muscles. These effects are extended, corroborated, and confirmed by the increase thus superinduced in the vito-chemical physics of the whole organism, through which the *quality* of the blood and fluids of the organism is approximately restored to the normal

standard; and this is done in the only way in which the special morbid quality of the blood can be permanently and satisfactorily antagonized. No wonder at the disparity in results of procedures which do and those which do not include the above-named physiological effects. The ideal purposes of remedies have in a fashion been complied with, though in many instances the intrinsic nature of the process may have been but imperfectly understood. A prolonged wearing of the instrument may and often does turn the beneficial to injurious effects. From its great weight and impermeability to air and the emanations of the body, the plaster jacket may become the most oppressive as well as repressive of instruments. The improvement temporarily assumed is then found to be deceptive, and can not be maintained unless the motor is made paramount to the restrictive in the combination of the two methods which this device practically presents.

A mode of treatment of the columnar angle is pursued in Berlin with commendable success which purports to be a modification of that above described. The "supporter" is reduced to a nominal place, being retained apparently out of deference to the prejudices of physicians and patrons who *expect* that appendage, and who have little accurate knowledge concerning it. The physiological factor of the treatment is pursued with great ardor and perseverance. The plaster jacket is replaced by felt, parts of which may be stiffened with shellac, or even straightened to conform to the shape by strips of thin, narrow, light steel, affording not the slightest pressure and counter-pressure. The restriction afforded to the bodily movements is less than that of an ordinary corset. The instrument is removed for the daily physiological or motor treatment. This consists of the application of *massage*, and of applied or specialized semi-exercises, prescribed and adjusted with great accuracy to the special defects of the patient. Stretchings of spinal muscles in connection with alternations of compression of the vertebræ are important features of the treatment. There is suspension and partial suspension by the arms, neck, etc., repeated at proper intervals by means of differently devised apparatus. A modification of hanging, producing the same effects, easily controlled and whose use may be prolonged, is the pivoted tipping couch or table. The patient is attached to it by the head or arms, or both, and, when *tipped*, the weight of the body causes the column to be compressed or distended, according to the direction in which the weight is made to act by the variations of position.

The *degree* of these effects, and the rate of alternation with which these variations may be passively supplied, are under instant and perfect control. The good effects on the spine of this and similar mechanical processes are direct and unequivocal.

The Health of Michigan.—According to the State Board of Health's Report for the four weeks ending September 28, 1889, diphtheria was reported from thirty-four places, scarlet fever from twenty places, typhoid fever from seven places, and measles from seven places. Reports from all sources show diphtheria reported at thirteen places more, scarlet fever at two places more, and typhoid fever at seven places more than in the month of August.

MODERN MEDICAL SCIENCE.

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It is a question whether the practice of medicine, until within the memory of people now living, has been a material benefit to mankind, aside from surgery and hygiene. Even now, judging from the vast amount of misapplied and useless drugs consumed by the people, it is a question whether the benefits from their use are not counterbalanced by their abuse. There are many reasons why medical science is behind all other sciences in its development and practical application to the wants of the people. Since Hippocrates, the founder of rational medicine, no real advancement was made until within the last century. The chief reason is that it has been subordinated to the vague speculations of philosophers and metaphysicians and the mysticisms of the priesthood, although long before the last century a solid foundation was being laid by the study of anatomy, physiology, histology, chemistry, and therapeutics, but no application of the knowledge thus obtained to the cure of diseases could be made until the teachings of medical science had become emancipated from the traditions of the past, and freed from their dogmatic spirit by rejecting all hypothesis and returning to the unbiased study of natural processes as shown in health and disease. Before that period the history of medicine is a dreary and barren record of endless disputes postulated upon abstract theories of the founders of rival schools, which had no foundation in nature or nature's processes. Such is the theory of Galen: of four elements—hot, cold, wet, and dry—which, mixed in proper proportions, constitute the norm of the body, and disease results from a disturbance of these proportions; of the methodists, that diseases are due to relaxations and contractions of the minute passages of the body; of Paracelsus's microcosm, the counterpart of the macrocosm, with the indwelling spirit of Archæus and his arcana of panaceas and specifics for all human ills; of the humorists and solidists and other schools of medicine which followed and disappeared, leaving nothing of value save a few chemical discoveries made by the alchemists in searching for the essence of matter, elixir of life, and philosopher's stone, and the knowledge of the therapeutical value of a few medicinal herbs. This meager outline presents a picture of childish conception of the internal structure of the body and theory of health and disease. Yet they were the net results of concrete facts resulting from the efforts of the brightest intellects of centuries. If it is impossible to postulate a true theory of health and disease, which, subjectively and objectively, are under daily observation, how absurd it is to attempt to postulate a true theory of the invisible world, which is so absolutely hidden from our senses! Metaphysics and theology, until within a comparatively recent period, absorbed and misguided all efforts to advance rational medicine and place it on a scientific basis. Metaphysics has no foundation in the real or natural world and leads nowhere, and ends in vain strivings to realize the unattainable. It consists of vague and shadowy definitions and juggle of phrases, without definite or com-

prehensible meaning, and, when divested of its flowers of rhetoric and dialectical subtleties, leaves nothing tangible behind. Its only useful purpose is to train the faculties in dialectics and rhetoric, but it creates an ideal world out of airy nothings, which is so far removed from this mundane sphere that it is impossible for it to bear fruit in relieving suffering humanity, but leads the ignorant and imperfectly educated into gross vagaries—illustrated at the present time by many absurd methods of curing diseases which have seized upon the popular mind. "Christian science" is ideal philosophy run to seed—abstract idealism reduced to the concrete and applied to the wants of humanity. All beyond the objective world is vague and incomprehensible, and all speculation pertaining thereto always has resulted in gross anthropomorphism or vague and shadowy idealism, leading on the one hand to gross superstition, inciting the passions to inhuman and barbarous cruelty; on the other hand, the speculative dreamer to fantastic conceptions of the origin of the material world and the laws governing it. To the anthropomorphic conceptions of the Deity are due the cruel and bloody religious sacrifices and frightful persecutions by Christian zealots. Theories and conceptions of the invisible world are always changing and varying as much as light varies from darkness—never stable, resting on the secure foundations of eternal truths and verities—notwithstanding the vast expenditure of the efforts of genius that has revolutionized the currents of thought and marked the epochs of time.

Natural laws or nature's processes are immutable, and the advancement of civilization, morally and physically, has kept pace with the knowledge obtained from their investigation and application to the wants of mankind. The human organism is of exceeding complexity; animated by vital force, the most complex of the forces of nature; hence medical science is the most difficult and complex of all sciences, and is yet in its infancy. It has made rapid advances in the last two decades. The pathology and natural history of a large number of diseases have been rescued by more exact methods of clinical observation and the more minute investigation of the pathologist from the obscurity in which they were shrouded. Pathological and structural changes, with their concomitant symptoms, have been traced from their beginnings. But there is a vast field yet under investigation and awaiting solution, more especially as to diseases whose causes are supposed to be due to bacteria or pathogenic germs. Unfortunately, the general practitioner, whose province is to apply this improved knowledge to the wants of the people, has not improved in equal ratio, and the public, whose enlightenment depends upon the general practitioner, is nearly as ignorant of the possibilities and limitation of medicine in curing diseases as it was when rational medicine was unknown to the profession, or before it became emancipated from the traditions of the past; when disease was supposed to be a separate entity of a supernatural origin that had taken possession of the organism; or some malign influence of the stellar and planetary system that had to be driven out by exorcisms, or conjured away by incantations, or await a more favorable conjunction of planets or stars as deter-

mined by the horoscope of the astrologer. Great faith was placed in the varying phases of the moon for good or for evil, and the potency of medicinal herbs depended upon gathering them during its favoring changes.

Many farmers, otherwise intelligent, still wait upon the changes or phases of the moon to plant their crops, and I have met an officer of the navy high in rank who had an abiding faith in the malign influence of particular phases of the moon and conjunction of the planets. The fault lies in imperfect and insufficient teaching and false conception of the duty of the practitioner in not instructing his patrons relative to the natural history of their complaints and the possibilities and limits of medicine in giving relief, and in not withholding medicine when it is not needed. The practitioner often justifies himself for his want of candor to his patrons by the Jesuitical casuistry that the patient is resolved to have medicine anyway, and, if he does not prescribe some harmless placebo, will go somewhere else and get it, and perhaps fall into the hands and become the prey of some ignorant quack, to his great harm. The patron is kept in ignorance of what is of great importance for him to know, and the profession is discredited and reduced to the level of the most arrant quackery, and by its example encourages the growth of and causes to flourish the most rank and shameless charlatany. Consciously or unconsciously, the arts of the conjurer and spiritual medium are practiced upon the credulous and confiding people, fostering the element of mysticism which seems inherent in all ignorant and imperfectly educated minds.

It is the province of scientific medicine to raise the profession above the plane of the common pretender and charlatan, and divest it of all appearance of mysticism to the people, making the separation so plain and palpable that the common mind can discriminate between the well-trained and skillful physician and the wily and pretentious quack as readily as it can between the well-trained jurist and the shyster, or the common laborer and the skilled mechanic. Before this result can be accomplished the people must be taught the causes and natural history of their complaints, the possibilities and limitations of remedies, and that nearly all diseases have a tendency toward recovery under favorable conditions by the conservative powers of nature and time; and that medication, at best, has only a temporary influence in favoring the cure. As long as the average practitioner, through ignorance or design, avails himself of the ignorance of his patrons and assumes the credit due to the conservative powers of nature, he keeps himself on the level of the charlatan. In nine cases in ten for which the practitioner is called upon for advice, little or no medication is needed. All that is required is to calm the fears of the patient and give advice as to regimen, and nature will soon correct whatever is amiss. Perhaps the tenth case is one of those diseases, obscure in its origin and insidious in its development, running through considerable cycles of time in its exacerbations and remissions before a fatal termination, and the structural changes have become too far advanced to effect a cure before the patient has become conscious that anything serious is the matter with him. Nothing can be done save to palliate the more distressing symp-

toms and defer the fatal termination as long as possible. Such are the gradual degeneration of the spinal cord resulting in locomotor ataxy, progressive muscular atrophy, spastic muscular paralysis, and other spinal diseases depending upon the locality of the lesions; also degeneration and sclerosis of the larger arteries, causing hypertrophy of the heart and dilatation of the left ventricle, and impairing the nutrition of the heart; and also chronic disease of the kidneys. Often these diseases are not recognized in their incipency, or give so little trouble that the patient is not sufficiently alarmed to consult his medical adviser until it is too late to obtain permanent relief. As scientific medicine progresses by tracing diseases to their beginnings with their concurrent symptoms, diagnosis is simplified and made easy, and the importance of hygienic and prophylactic medicine becomes more apparent, and also the almost criminal fallacy of the indiscriminate prescribing of drugs upon general principles. In this matter it is the duty of the general practitioner to await the results of the more careful and scientific experiments of trained experts. "To make haste slowly" will save much valuable time, avoid many errors, and prevent much harm, disappointment, and humiliation, resulting from imperfect observation, hasty generalizations, and crude theories. One very essential factor is too much ignored by modern investigators in determining the ætiology of diseases and its bearing on treatment. A recent writer upon the "Progress of Medical Sciences" says: "The fallacy of the old medical systems, of which Boerhaave, Van Helmont, and Brown were founders, is now acknowledged, and the attempt to explain the causation and treatment of diseases on the 'pneuma' or 'vital forces,' humors, and the 'archæus' has been frustrated by the more accurate and better-equipped labors of the nineteenth century, while the theories advanced by these brilliant intellects have fallen into disrepute." There is a tendency in modern research to ignore or not give its due importance to this factor which, in a vague way, entered into the theories of nearly all of the exploded systems of causation and treatment of diseases, designated as the "pneuma" or archæus, the indwelling spirit, now called "vital force," and trace the causes of diseases to "disordered functions, impaired nutrition, and consequent structural changes," and to infections from pathogenic germs. If there were no other factors than these to be considered, the problem of the causation and treatment of diseases would be much simplified. Under the same conditions and surrounding influences the effects of causes and results of treatment would be more uniform. All exposed to pathogenic germs would be affected alike; no one would be exempt. There are inherent in some families and individuals great powers of resistance to diseases. They are exposed to and pass through frightful epidemics unscathed, or, if attacked, throw off the malady with ease, or survive surgical operations which are apparently hopeless, or frightful injuries which would be inevitably fatal to the average individual. This factor of resistance, whose value it is impossible to estimate, enters into the problem of causation and treatment of all diseases and vitiates the deductions and generalizations based upon data gleaned from clinical observation and experiment.

It is evident there is a potential principle or latent force, whether the "pneuma," "archæus," or some other indwelling spirit vaguely recognized by the founders of the old schools of medicine, inherent in the germ of all organisms, which controls and presides over their growth, regulating their form, features, and physical and mental development, including the powers of resistance to diseases. In some organisms the vital force is vitiated and feeble, and the organism becomes the prey to surrounding destructive or disintegrating agencies and internal abnormal processes. In others it is strong and vigorous, and gives the organism a perfect physical development, symmetrical and harmonious in all its parts, capable of resisting ordinary assaults from without from destructive agencies which destroy the weak. This vital principle animates all organic life, animal and vegetable, and is governed by the laws of its being and presides over the destinies of its species, preserving the strong and eliminating the weak by depriving them of the power of reproduction or causing them to be pushed to the wall by the strong in the struggle for existence. In the economy of nature the welfare of the individual is subordinated to the welfare of the species. Tendencies to disease are often due to inherited vitiated and weakened vital force, which defects often remain latent until the organism is called upon to resist an unusual strain; then it succumbs to the first rude shock; or the defects may manifest themselves by abnormal processes within, in malignant neoplasms, degeneration and decay of tissues of the spinal cord or the inner coats of blood-vessels, tubercular deposits in glands or other organs, without any apparent cause. The production of the specific pathogenic germ in each respective disease does not prove absolutely that these germs are the causes of their respective diseases as long as a perfectly well constituted organism resists all of these diseases under the same conditions and influences. There is a defect in the *a priori* reasoning; the bacilli may be the result, not the cause, and as "innocent of mischief as maggots in a neglected wound." There may be and probably is another factor which prepares the soil for the reception and propagation of these germs. All healthy and perfectly constituted organisms resist fungous and other parasites which prey upon decaying or imperfectly vitalized organic matter. Fungous growths are not found on healthy and vigorous plants, or vermin on healthy and well-nourished animals. It is only after their vital forces are weakened by disease or the rigors of a severe winter and by insufficient and unwholesome food. In the history of the cholera epidemics which have swept over this country before the comma bacillus was known or dreamed of, the disease suddenly burst upon communities with great virulence, and left as suddenly as it came, after expending its force, leaving no trace behind, save the deserted homes and widows and orphans bereft of their natural protectors. No efforts were made to destroy the comma bacillus save general sanitary policing, which, according to our present lights, was wholly inadequate to prevent a perpetuation of the disease by propagation of the germs. Any research intended to trace diseases to their ultimate causes and apply remedies for their prevention and cure, without giving the factor of vital force its due importance, will result in failure

and disappointment. It is one of the ultimate facts of nature; we know that it exists only from its phenomena manifested in the growth and decay of all organisms; it determines the normal development and duration of life of the organism, of its species, and its perpetuation by reproduction. The limits of that life can not be prolonged, but may be lessened by the many accidents of life and by violation of the laws of its existence. Powers of reproduction are vitiated and weakened by violation of these laws, which are inexorable, and will exact the penalty to the last farthing. A perfectly well constituted organism contains from the germ sufficient force in reserve for its perfect evolution of fetus, infancy, puberty, reproductive period, and vigor of manhood, when it displays its full powers, and declining old age, when the last reserve is called upon, and at the final expenditure of force the vital spark fades gently and becomes extinguished, having accomplished its perfect and complete round. Any inherent defect becomes more pronounced during the evolution of the climacteric periods, of puberty, and decline of reproductive functions, and the puerperal state, from an increased demand upon the vital powers of the organism. It is evident, then, that the ultimate causes of many diseases are due to inherent defects of the organism transmitted by inheritance, which remain latent until some exciting cause develops them. From three years' service in the army during the War of the Rebellion, and several years' service as pension examiner subsequent to the war, I have observed that those soldiers who bore the tremendous hardships and privations of the field without becoming disabled thereby have since become prematurely old and decrepit, some of them without any assignable cause save the premature expenditure of the reserved vital forces; others from faulty nutrition, indicated by degeneration or sclerosis of the spinal cord and arteries and resulting disease of the heart, and chronic rheumatic troubles affecting mostly the spinal and sciatic nerves. It is a noticeable fact that nearly all of the prominent generals of both sides who served through the war have died prematurely.

Ocular Massage.—The "Lancet's" Paris correspondent writes to that journal as follows:

A communication was recently made to the Academy of Medicine on this rather novel, or, as it would appear, modification of the ancient use of massage by M. Costomiris, of Athens. He said that if the ancient Greeks employed massage in eye affections it was not by means of the pulp of the finger on the conjunctiva and cornea, such as he had been in the habit of employing for many years. His method was, after everting the lids, to spread a thickish layer of fine boric-acid powder on the conjunctiva, and then with one of the fingers to rub, in massage fashion, the parts so covered with the powder. He then washes the eye in boric-acid solution, and for the few following days applies a lotion composed of 1 in 200 of nitrate of silver to prevent the inflammation which sometimes follows the manipulation. He next rubs the outer surface of the lids in the same way, which he finds lessens any pain caused by the internal massage. It is as well in every case to begin with a short and very light friction, then to increase it and again decrease it, and this should be repeated once daily and continued for two or three weeks after cure. M. Costomiris speaks very highly of this method in the treatment of granular lids or follicular conjunctivitis, in parenchymatous keratitis, in hypopyon, in infiltrations, and in abscesses or ulcers of the cornea; but in deep-seated ocular mischief he can not recommend it.

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"GYNAIA."

IN a recent issue of the "Pacific Medical Journal" there was published a review of a monograph by Dr. Steinerkopf which affords abundant food for reflection. To this article we are indebted for all the facts as to the nature and treatment of the disease which has been described by its discoverer, and which he has named "gynaia," defining it as "the simulated existence of feminine moral qualities in the person of a man"; for the original brochure has been inaccessible to us. But enough is related by our contemporary to place Dr. Steinerkopf's right to the title of *savant* beyond doubt, despite the unfortunate fact that in callow student-life he affiliated with the misguided followers of the cult founded by Hahnemann. But, even if he is a medical heretic, he at least is consistent in his practice, for he is an enthusiastic exponent of "high dilution" therapeutics, though stopping short of "olfaction."

The discovery made by Dr. Steinerkopf is that what has been yept effeminacy is in reality a disease which is curable, and not a concomitant of congenital anorchidia or a resultant of an early training analogous to the subalar rearing of the offspring of a uniparous hen, when occurring in a male. This disease, "gynaia," is characterized by the exhibition of timidity, aversion to tobacco and to dogs of non-personal allegiance, manners of ratiocination untrammelled by the friction exerted by logic, and other qualities commonly observed in the typical human female. Given the symptoms, the proper treatment to be followed was plain; and to a homœopathic high dilutionist the selection of the specific remedy was a mere bagatelle. The only stumbling-block in the way was the difficulty of diluting femininity to that degree of attenuation needed to prevent it from aggravating the disease. It is a well-known fact that the most important scientific discoveries have been made through sudden and accidental suggestions afforded by trivial and common occurrences. The case in question was no exception to the rule, for the nonplussed scientist saw in an "allopathic" journal a would-be crushing statement, emanating from the venomous malice of a ribald scoffer, to the effect that the fiftieth dilution of "lachesis" contained an amount of the alleged drug which would be present in a mixture of a single drop of the mother tincture with the whole Atlantic Ocean. This apology for a sally of inexpensive wit was to Dr. Steinerkopf what the falling apple was to Newton, the unaccustomed bath to Archimedes, and the post-mortem kick of the frog's leg to Galvani; for the statement revealed the hidden path which was to lead to success. In brief, the moment at last presented itself when a solitary girl was bathing in the surf at a sea-side resort under Dr. Steinerkopf's observation;

and, as her bathing-suit was ultra-Parisian in scope, an exceptionally favorable chance to obtain the requisite dilution of the drug was offered. From a bucketful of water secured at that time, the essence of manliness, retired hoop-skirts, boots, other inorganic matter, and domestic animals were eliminated, and a sterilized solution of chemically pure femininity was obtained. This was labeled "*puella domestica, seu officinalis, seu astiva, 50th*," as, in spite of the attractive appearance of the crude drug, the doctor was too intent on his purpose, and perhaps on the bathing-suit, to be able to recognize it when attired in conventional raiment, thereby being unable to discover the exact variety of "puella" in his preparation. Whatever the variety, it was the correct remedy, as in both "provings" and curative power it surpassed his wildest dreams. His own "proving" of the drug resulted in the temporary acquisition of feelings and habits to which he had before been an entire stranger. He could only sit down in comfort when one of his feet was interposed between the seat and his own person; when a fellow-bachelor crony came later than usual to the *Gasthaus* in which they had for years met nightly, Dr. Steinerkopf burst into passionate tears and upbraided his friend for his heartless conduct with "that woman" who had kept him away; he experienced singular feelings of uncertainty as to the location of and method of access to his pockets, and carried all his journals and specimens in those placed in the skirts of his coat; he regarded with horror the progress of baldness in his own case, and was actually on his way to a perruquier's when the effect of the drug passed away. After another dose he sought to put on his trousers by the same series of movements and by the same route as those by which he donned his shirt.

The foregoing symptoms are only a few of those observed, and all, when due to disease, vanished before the might of the drug. Though not as yet proved, it is reasonable to expect that the remedy will be equally effectual in those maladies cognate to "gynaia," and will mitigate the chromatic disagreement of shirt and collar, as well as lessen the evidences of intracranial baldness, that are so often observed in such cases. May it not promote absorption of the pre-ocular disc of window-glass that serves to dim the vision of a patient to the looks cast upon him by intelligent men, or to create a desire for other diet than that composed of the heads of walking-sticks? In the interests of posterity let this drug be administered to the *jeunesse dorée*, in the hope that the race of intellectual invertebrates will become extinct, and that hereafter the scions of a virile family stock will show an atavism reflecting the renaissance of ancestral manhood and not the development of an androgynous fungus on the family tree. Then may these anthropoid things, after an amœboid existence has terminated by the yielding up of a hebetudinous ghost by the same oozy exosmosis that marks the passing of a life-weary oyster, be known only through clay-bank intaglios or masses of adipocere uncarthed by the coming race. Who knows but that they might thus fulfill their destiny by bearing fossil testimony that Darwin was no wild dreamer in his search for a "connecting link" as the missing key-stone of his evolution arch, and furnish a much-needed subject for

contention between the Church and the science of a century hence. We can not urge too strongly upon the profession the advisability of following up this discovery of Dr. Steinerkopf's, for true philanthropy demands that our descendants should be spared, as far as may be, the shame and disgrace of this blight of emasculation-mildew from which we suffer. The possibilities are too great to be ignored.

THE DANGER OF SUCKING THE TRACHEOTOMY-TUBE.

To the "Lancet," animadverting upon this danger, a correspondent of that journal replies that, if anybody who can swim is justified in trying to save a fellow-creature from drowning by jumping into deep water, it must be allowed that a surgeon is justified in sucking a tracheotomy-tube in order to clear a blocked trachea or the large bronchi. Such action, the writer says, must depend upon the personal character of the operator, and whether or not he has "near and dear relatives dependent upon him," since no instrument is so effective as the mouth, and the dangers of infection can be effectually overcome by rapidly placing one's self under the influence of mercury.

As an exhibition of false sentiment, bad logic, and thoroughly dangerous practice, this should not be allowed to pass unnoticed. According to the first and fundamental law of moral philosophy, "man's first duty is to himself." From this dictum there is no appeal, whether we may have others dependent upon us or not; although it may seem selfish at the first glance, there are many cogent reasons why, even in the matter under present consideration, it is particularly true, and therefore not to be disregarded. Logically, the situation would have been more accurately portrayed if the writer had likened it to a case of drowning in which the would-be rescuer could not swim.

Practically, an ordinary piston syringe, to the nozzle of which is affixed a short piece of rubber tubing, is an admirable substitute for the operator's mouth, and an instrument which should constitute a part of the armament of every tracheotomist.

As to the risk to the operator of sucking the trachea, the application of a razor to the throat would be a more agreeable if not a more certain means of suicide. We can recall a score of cases where valuable lives have been directly sacrificed by it, while a sharp attack with a tardy convalescence of six months has been the writer's personal experience in the matter. Indeed, in a somewhat large experience, he has never known of an instance in which the act has not been followed by some reaction in the operator's throat.

In Billington's admirable work on diphtheria, it is a pleasure to note the views expressed by that dispassionate author upon this very question. "Diphtheria," he says, "is communicated in a variety of ways. The first of these is by direct contact, or the deposition of diphtheritic matter on the mucous membrane, or upon wounds of the skin. Examples of this mode of transmission are furnished by numerous well-known instances in which physicians have contracted the disease by sucking out tracheotomy-tubes, or by receiving the secretions of the patient in the mouth or nares. . . . The demonstration

afforded by the instances referred to is not at all weakened by the fact that many other physicians have sucked out tracheotomy-tubes and have received diphtheritic secretions in their mouths and nares, or that others have kissed infants affected with diphtheria, or that M. Peter and others have painted their own fauces with solutions of false membrane, without diphtheria resulting. . . . A limited number of positive examples of the communication of diphtheria by direct contact, among many negative ones, is all the proof of its occurrence that could be rationally demanded." Such practices, therefore, as admit of the possibility of bringing the diphtheritic poison into contact with the mucous membrane of the throat are absolutely reprehensible and not to be countenanced.

MINOR PARAGRAPHS.

MORTALITY FROM "CHRISTIAN SCIENCE."

A LEADER of the so-called "Christian Scientists" has been arrested in Brooklyn, on the charge of manslaughter. The charge against him states that he contributed to the death of a young woman, not over twenty-four years old, who, until about a week before her death, had apparently been in blooming health. She was taken sick with a fever, probably typhoid, on a Friday, and on the following Thursday was dead. All proper medical care was denied the sick woman. A physician was called in by the accused, in whose household the patient lived, "to comply with the law," as she said. Religious observances were performed about the sick-bed for some days, as the sole means of cure. And, even after death had taken place, the prayers and other ritual were continued in order to call upon the deceased to "arise again in the flesh." This imposture was even in progress at the time when the arresting officer reached the house of the accused, and the body had already been placed in the ice-box used by undertakers. The leader, in this instance, belongs to an ignorant and superstitious class of society, and his followers are from the same class. The hold of this novelty or "fad" upon the "better element" in our cities has been relaxed, and now the poorer and more ignorant are beginning to suffer from it. As is sure to be the case with regard to every manifestation of quackery, the poor and defenseless suffer the most from it. Since the arrest above referred to another death by neglect has been reported from among the same coterie of deluded people.

LONDON POST-GRADUATE COURSES.

It has always been a reproach to London, says the "British Medical Journal," that the unrivaled clinical material of its numerous hospitals is not fully utilized for the purposes of medical education. It is not that teaching power is wanting; on the contrary, the metropolitan schools could furnish among them a body of men thoroughly fitted to make London the center of the medical world, as it undoubtedly ought to be. Owing to want of organization, however, a large amount both of material and teaching power is wasted. Nowhere is the loss of potential educative energy more evident than in the hospitals to which no medical school is attached. It is therefore with peculiar satisfaction that we hail the announcement that the medical staffs of the Brompton Consumption Hospital, the Hospital for Sick Children, Great Ormond Street, the Hospital for the Paralyzed and Epileptic, Queen Square, the Moorfields Ophthalmic Hospital, and the Hospital for Diseases of the Skin, Blackfriars, have decided to unite their forces, and give courses of instruction to qualified medical men in the various important branches

of medical science and practice which these institutions represent. The teaching is intended to be thoroughly practical, and the convenience of men engaged in the active exercise of their profession has been studied in the arrangement of the hours at which the courses will be held.

FOOD ANALYSIS IN THE RUSSIAN ARMY.

THE Russian Ministry of War has found it necessary to submit the army ration to a closer inspection and analysis than has been hitherto adopted, on account of the frequency of scurvy and other dietetic diseases among the soldiers. It has been decided to furnish to each army corps an ambulatory laboratory with chemists, who must report upon the quality of the food delivered by the commissariat.

CRURAL VACCINATION.

THE "Medical Press and Circular" has an item, taken from some unnamed French source, which raises the question as to the best place on the body for the insertion of vaccine. A French physician has done a sufficient number of vaccinations upon the leg to be able to say that that member is superior to the arm—in his experience. They were all cases of re-vaccination in school-children. His proportion of failures he states to have been, in the arm, 53.8, and in the leg 45.5 per cent.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 8, 1889:

DISEASES.	Week ending Oct. 1.		Week ending Oct. 8.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	55	11	69	11
Scarlet fever.....	34	3	33	6
Cerebro-spinal meningitis....	1	1	0	0
Measles.....	13	2	18	1
Diphtheria.....	55	14	67	19

The Health of Johnstown.—There was a limited prevalence of typhoid fever during September at Johnstown, and there are now twenty-two cases of that disease at the hospital of the Red Cross Association. Those who have had the fever are, for the most part, from among the transient population of the town. Sickness and death are not infrequent, however, among the townspeople proper, their causes in many instances being referable to the great calamity.

A New College of Pharmacy.—The Kings County Pharmaceutical Society has had under consideration plans for the establishment of a college of pharmacy in Brooklyn. It is reported that the preliminaries have all been agreed upon, and that before many months a fully equipped school will have been launched.

The Manhattan Eye and Ear Hospital.—Dr. W. M. Leszynsky has resigned from his position on the medical staff.

Society Meetings for the Coming Week:

MONDAY, *October 14th*: New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynecological

Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *October 15th*: New York Academy of Medicine (Section in Theory and Practice of Medicine); New York Obstetrical Society (private); Medical Society of the County of Kings; Ogdensburgh Medical Association; Medical Societies of the Counties of St. Lawrence (semi-annual) and Westchester (White Plains), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Baltimore Academy of Medicine.

WEDNESDAY, *October 16th*: Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medical Society of the County of Allegany (quarterly), N. Y.; New Jersey Academy of Medicine (Newark); Philadelphia County Medical Society.

THURSDAY, *October 17th*: New York Academy of Medicine; New Bedford, Mass., Society for Medical Improvement.

FRIDAY, *October 18th*: Chicago Gynecological Society (annual); Baltimore Clinical Society.

SATURDAY, *October 19th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Letters to the Editor.

PULMONARY CONSUMPTION.

DEVIL'S LAKE, NORTH DAKOTA, *September 17, 1889.*

To the Editor of the New York Medical Journal:

SIR: So much has been written upon consumption that it seems like presumption to attempt anything further, and yet the subject is far from exhausted, nor is its status entirely satisfactory to the practical physician.

The *Bacillus tuberculosis* is acknowledged by all as an entity, by many as the sole *causa morbi* of tuberculosis, by the few and more conservative as a mere sequence or at most as one only of two factors causing the disease. Our fathers taught that in certain individuals there was a diathesis either inherited or acquired. What did they mean by a diathesis? Simply this: if a rattlesnake bites a non-venomous snake, a dog, or a rabbit, certain morbid phenomena result. If the venom is examined microscopically, it will be found swarming with bacteria having a wonderful power under certain conditions to promote putrefaction. If, however, this venom is injected into a rattlesnake, there will be no effect other than traumatic. The non-venomous reptile, therefore, has a physiological condition, or, as our fathers would say, diathesis, entirely differing from the rattlesnake's. This diathesis can be inherited. To understand how this occurs, let us briefly review the three or four well-known laws governing the generation of plants and animals. These laws are as follows: 1. A plant can place no constituent in the seed not possessed in itself. 2. All parts of the plant are subservient and contribute to the production of the seed. 3. The seed contains all the constituents of the parent plant or plants, and these constituents have a ratio to the constituents of the parent plant. 4. The seed under certain conditions has the power to draw *similia ad simile*. The first law is evident and needs no example to substantiate or illustrate it. In proof of the second law is the well-known fact that, if cattle are dehorned for generation after generation, horns will at last fail to grow upon the progeny. Under this law it must not be supposed that a constituent comes from a part like a rill from a mountain to

be deposited in the *gone*, but that there exists a constituent in the economy to nourish any given part and from this a modicum is laid down drawing to itself similia, and thus the plant or animal generated has a similar part.

In proof of the second law also is the fact that, if a part or an organ is augmented or distorted through successive generations, the augmentation or distortion will appear in the offspring. The story of the *Macrocephali* is a case in point. The dehorned cattle, the bald-headed man, and the eyeless fish are all illustrative. In conformity to this law it appears to me, I will digress to say, impossible that a disease like syphilis can be transmitted. The germ upon which the disease depends is one fact or has its own separate organic existence. It is an invader and lives at the expense of the recipient and can never become an organized constituent of the sufferer. It can therefore no more be deposited in the *gone* than the worm in the body of a tree can be transmitted to the seed thereof. The child becomes diseased by contact as the father or mother did. I have myself seen children perfectly healthy born of syphilitic parents. On the other hand, the healthy child of diseased parents afterward contracting the disease will suffer slightly less than if the parents had been pure.

The worm in the tree is there because it finds that which is pleasant to itself and sustaining to life. This substance it removes more or less from the tree, and as a consequence trees generated from worm-eaten trees contain less of those constituents agreeable to the worm, and thus the genera are protected. Small-pox among people who have been vaccinated or suffered the disease becomes comparatively mild, but when the North American Indian, secluded from the virus through a great but unknown number of years, finally meets the microbe, the destruction is terrible. To illustrate the third law, one may examine the seed of the maple. This will be found a miniature tree, differing from the parents only in the quantity of constituents. Grafting is a beautiful illustration of the fourth law. The graft, containing only ingredients of the tree from which it was taken, accepts only like constituents in its augment from the tree upon which it is placed. The fruit, therefore, is like that of the parent tree.

I have briefly reviewed these laws, not that I think they are not well known and understood, but simply to recall them to mind and that a clearer conception may be had of the term diathesis. Reverting now to phthisis, it will be noticed that those who say that the bacillus is the sole *causa morbi*, also affirm that it has the power of multiplying; that where at first there were only a few, soon there are many. Now, to assert this is to admit the reception of an augment by the bacilli. What is this augment? Whence does it come? Why does it exist in A but not in B? And is it possible for tubercular bacilli, having *per se* the *vis vite* to sustain, to do this and generate themselves without it? Is it not true that, if we knew the nature of this augment and could withdraw it from the human economy, the bacilli must of necessity perish? We may not now be able with the microscope or by direct experiment to demonstrate the exact nature of this pabulum; but, as the astronomer by reasoning from cause to effect predicts the position of an unknown celestial body long prior to its discovery and location by the telescope, so, too, by the same process of reasoning, the physician may and often does discover the hidden origin of disease. There is a law of pathology that, if an apocrisis occurs in an organized body, resulting in a stasis of the substance separated, in whatever part or organ the stasis occurs there will be morbid manifestations. A stone in the bladder, the pus in an abscess, and the deposit in scrofulosis, all exemplify the law. There is also another law, that, if the apocrisis is abnormal in amount, in the part or organ from whence it comes there will

be abnormal manifestations, either of the part or of its functions. Anæmia and dilatation of the heart are illustrative. In the latter the thinness of the heart walls is not wholly due to outward pressure, but partly to overwork, the waste of tissue going on more rapidly than repair. Applying these two laws to phthisis, the morbid manifestations of the stasis are apparent to all, and by just as much as these are the easier of detection, by so much the thoughtless physician directs his attention thereto. Under the second law we find that the abnormal evidences are most persistently and constantly noted in the nervous system, and infer that the apocrisis therefrom is the pabulum or augment upon which the bacillus thrives and has its being. I may point to the crystals of cholesterin found in the deposit, which are now known to be a part of the detritus from the nervous system; but other evidences of a clinical nature, inasmuch as they are familiar to all experienced physicians, I need not repeat. There is, however, one remark of Watson's which is very impressive—viz., precocity of mind and intellect, while it delights the fondness of the parent, awakens the fears of the more far-seeing physician. It is well known that mental activity will produce asitia, nor did this fact escape Shakespeare, who makes Cæsar exclaim: "Let me have men about me that are fat, sleek-headed men, and such as sleep o' nights. Yon Cassius has a lean and hungry look. He thinks too much." *Vice versa*, asitia will produce nervous irritation, and thus the diathesis may be temporarily acquired, as after fevers, from confinement and impure air, or from the actual want of food.

In the latter case the prognosis is much better than in the former, for, if the diathesis is inherited, it will exist though we make our patient fat, whereas, if it is acquired, we have only to remove the cause and the diathesis will vanish with everything depending upon it, including the bacilli. It will be noticed, too, that the inherited diathesis was detected by our fathers long prior to the advent of the second fact, or the one which, united with the former, produces the disease proper. This goes far to prove the initial point to be in the nervous system, as in the precocious child mentioned by Watson. The diathesis acquired through generations of mental worry is, of course, transmitted to the offspring exactly as the *Macrocephali* passed down to their children their distorted heads, and, when once acquired, is so abhorrent to Nature that she stamps it out as soon as possible, even at the expense of destroying some of her most beautiful works. We can not hope to thwart Nature in her purposes, but, having discovered the bacillus, can we thereby do anything to assist her, as Jenner did with the modified virus of small-pox? Of course, by secluding phthisical persons we may protect those having a temporary diathesis; but what of those in whom it is permanent? Here is a field for experiment, though, for one, I fear the result will be unsatisfactory. In treatment, that physician is most successful who can remove quickly the asitia and nervous excitability. When the condition is congenital, narcotics that do not interfere with nutrition are very useful. In a recent case I was furnished the fluid extract of lactucarium by Parke, Davis, & Co., of Detroit. It proved satisfactory, having the beneficial without the ill effects usual to narcotics. In sending a patient from home, not so much a sepsis as freedom from care and a climate affording the greatest possible number of days in which exercise can be had in the open air, is the desideratum. When there is fever, exercise should cease and be resumed when the fever has been subdued. Another very important point in management is this: No patient should be accepted for treatment until he fully understands his situation—that it is a fight for life, and that the medication and hygienic rules must be submitted to through a possible period of years.

W. T. O'DONNELL, M. D.

Proceedings of Societies.

ASSOCIATION OF AMERICAN PHYSICIANS.

Fourth Annual Meeting, held in Washington, D. C., on Wednesday, Thursday, and Friday, September 18, 19, and 20, 1889.

The President, Dr. FRANCIS MINOT, of Boston, in the Chair.

(Concluded from page 380.)

A Case of Slow Pulse.—Dr. D. W. PRENTISS, of Washington, introduced a patient as a subject of clinical interest whose pulse-rate for the past two years had ranged from thirteen to forty in a minute. He was a man of about fifty-eight, said to be without organic cardiac lesion and to enjoy good health. The cause had been ascribed to tobacco or malarial poisoning, or perhaps both. The interest in the case turned on the pathology. It was a moot point whether the slowness of the pulse resulted from overstimulation of the inhibitory nerve, from paralysis of the sympathetic, or from lesion of the nerve centers.

The Relation between Chlorosis, Simple Anæmia, and Pernicious Anæmia.—Dr. F. P. HENRY, of Philadelphia, read a paper on this subject. He said that the title of his paper might be criticised on the ground that it assumed certain relations to exist between these various affections of the blood. To such exceptions it might be replied that the selection of such a title was the expression of the universal medical belief that these affections were allied, and it was in the highest degree improbable that such a unanimous verdict could be reversed. Considering, then, first the question of pernicious anæmia, the exact status of which was of fundamental importance, it was admitted by all that most of the clinical features of this disease also obtain in numerous other affections, and notably so in atrophy of the gastric glands and cancer. Those, however, who argued most strongly in support of the theory that it was an independent disease, excluded from the category of pernicious anæmia all cases in which an anatomical lesion was found in any organ. This struck him as most unscientific, because an independent disease was one which rested upon a constant anatomical basis, or was invariably produced by the same specific agent. Hunter had endeavored to establish pernicious anæmia as an independent disease by the demonstration of an excess of iron in the liver in cases of that affection, and had regarded that as an essential anatomical feature of pernicious anæmia. The work of Hunter had been of great value, and he had certainly demonstrated the existence of an excessive hæmolysis in that disease. In the author's opinion, however, this hæmolysis was a consequence of defective hæmogenesis. In support of this theory there were certain facts which showed the red corpuscles of pernicious anæmia as abnormally weak and perishable. Chlorosis was universally admitted as being due to defective hæmogenesis, and he therefore regarded it and pernicious anæmia as closely related affections. Transition from one affection to the other had been observed by himself and others. His conclusions therefore were (1) that pernicious anæmia is a process, not a disease; (2) that it is closely related to chlorosis; (3) that it may be the terminal stage of other diseases, and especially of cancer of the stomach and atrophy of the gastric glands. Leucocythæmia and Hodgkin's disease—in that they are always associated with lesions of the blood-making organs, spleen, lymph-glands, bone-marrow, etc.—might be regarded as independent diseases, or rather different stages of the same disease, for transitional processes had been recorded.

The Relation of Anæmia to Chlorosis.—This paper, by Dr. F. FORCHHEIMER, of Cincinnati, was read, in the absence of the author, by Dr. Pepper. It opened with the statement that the first thing which came up to confuse, in consideration

of the subject, was the difficulty in finding apt and comprehensive definitions for the two diseases. Inmermann began his definition as follows: "The conception of the term anæmia is somewhat indefinite in its elasticity," going from this into an elaborate definition, drawing as a final conclusion the inference that, partly from clinical and partly from direct (analytical) evidence, we are justified in stating that anæmia is that condition in which there is a diminution of red blood-corpuscles, as well as of the albumins of the plasma in the blood (hypalbuminosis). Again, Strümpell had stated that the essential element in anæmia was a diminution in the red corpuscles, or so-called oligocythæmia, further stating that oligocythæmia was not invariably accompanied by a diminution in the amount of serum albumin (hypalbuminosis). The conflicting ideas as to the proper definition of anæmia were clear when compared with those on chlorosis. One writer had said: "I believe chlorosis to be a form of anæmia depending upon similar changes, and therefore to be considered as falling under the head of idiopathic anæmia." Zender conceived chlorosis to consist in defective formation of red blood-corpuscles, both quantitatively as well as qualitatively, adding that, as iron was diminished in the blood and not excreted, the fault must lie in defective absorption. Then other authors, like Strümpell, defined anæmia as oligocythæmia, stating that chlorosis was a mild form of essential anæmia, such as is common to females at the time of puberty. Something approaching a sharp, distinctive definition had been enunciated by Duncan, who appeared to be the first to make the distinctive feature, oligochromæmia, characteristic for chlorosis—that was to say, that in chlorosis we found the individual red corpuscle deficient in hæmoglobin. It would readily be seen that a deficiency in hæmoglobin would exist in any condition in which the number of red corpuscles is diminished, and this would be called anæmia according to definitions herewith accepted. But the red corpuscles being normal as to quantity, and the hæmoglobin being at the same time diminished, one would be justified in concluding that each individual red corpuscle carried too little hæmoglobin, and either condition would be called chlorosis. Perhaps, unfortunately for this condition, the term chlorosis was essentially a clinical one, by far the greater number of reported cases being probably no chlorosis at all. This error obtained both abroad and at home. In this country the author of the paper had seen an American girl who had been compelled to stay in St. Petersburg for several years. She had been there pronounced chlorotic by an eminent physician. Examination of her blood had revealed oligocythæmia (about 70 per cent.) and a proportionate oligochromæmia. The girl had been very anæmic, but, according to the conception he asked for the term, she had not been chlorotic. The fact that oligocythæmia and oligochromæmia might occur in the same individual made the term chloranæmia justifiable. As to causation, it would be found that almost every cause put down for anæmia would hold good for chlorosis. Generally, it might be stated that sex, age, a peculiar composition of the blood, and certain vascular anomalies were held characteristic of chlorosis.

But in regard to the chlorosis of males one must be warned against the too ready acceptance of cases of anæmia as chlorosis. The fact urged that these cases were relieved by energetic chalybeate treatment was urged in favor of the chlorosis theory, but then in the so-called cases of school anæmia we expected good results after removal from school and the administration of iron. He considered the relation of the symptoms of anæmia to chlorosis depended upon the conditions of the blood and the anatomical substrata. Given, then, a case of anæmia in which there was only a reduction of hæmoglobin as a result of oligocythæmia, and a case of chlorosis in which there was a reduction of hæmoglobin as a result of oligochromæmia,

and metabolism in both these cases would be approximately the same. True, the patient with chlorosis might have a different facies; as the essence of the affection lay in the oligochromæmia, the amount of reduction in hæmoglobin, if due to oligocythæmia only, would be so great as to become a physical impossibility inconsistent with life. But if, in anæmia, we had oligocythæmia as well as hypalbuminosis, said to co-exist in the majority of cases, then the metabolism must be different from that of a pure case of oligochromæmia. As a result of reduction in hæmoglobin there was reduction in the process of oxidation in the body; at the same time the waste products were carried off and sufficient food carried to the tissues by the plasma of the blood, which suffered no change. In this way the nutrition was not generally interfered with; indeed, there might be increased deposit of material in chlorosis because oxidation was not sufficient to utilize the albumin of the plasma. The result of this suboxidation would be a deposit of fat, a point which Immermann spoke of as the "nucleus" of the clinical difference between anæmia and chlorosis. As to symptoms, if Virchow's anatomical lesions were accepted as belonging only to chlorosis, then there existed no difference between the symptoms of the two diseases. Symptoms on the part of the nervous system had been made one of the characteristics for chlorosis, but hysteria and allied conditions were of such common occurrence nowadays that it was unreasonable to make any one condition responsible for them. The author concluded his paper by referring to the therapeutic side of the question. Although the indiscriminate use of iron in anæmia must be deprecated, yet, upon the whole, iron was looked to as a specific in anæmia as well as in chlorosis. While not willing, then, to separate anæmia from chlorosis, we were justified in the statement that iron ought to be given in every case of chlorosis on account of the rapidity of the chalybeate effect.

Dr. WILLIAM OSLER, of Baltimore, said that he was sorry to take issue with Dr. Henry. He had devoted a considerable amount of time to blood work. He must continue, as the result of his work and observation, to regard chlorosis as one of the essentials of anæmia and as a disease absolutely distinct from pernicious anæmia. He had never seen a well-defined case of chlorosis in the male. With respect to progressive pernicious anæmia, we had not facts enough at command to formulate an opinion as to whether it was a separate disease or simply a symptom of several other affections.

Dr. PEPPER said that he was not prepared to admit the analogy between chlorosis and pernicious anæmia, for want of essential data.

Gastric Neurasthenia.—Dr. G. M. GARLAND, of Boston, read a paper dealing at length with the subjects of dyspepsia nervosa, anorexia nervosa, and vomitus nervosus. The writer cited in detail cases from his own practice. The paper evidenced careful and exhaustive study of his subject, with much clinical acumen as to objective findings and the various phenomena incident to his own cases. The sum and substance of his conclusions, based as they were necessarily upon the scanty knowledge and bewildering hypotheses as to the specialization of the nerve-supply to the stomach, resolved themselves into a tersely expressed opinion to the effect that the secretion of hydrochloric acid in the stomach must be governed by a special system of nerves which had a definite center of departure. Like other similar systems, these nerves appeared at times to become functionally deranged, when they performed their work with a reckless disregard of the comfort of their possessors.

Primary Cancer of the Gall Bladder and Ducts.—Dr. JOHN H. MÜSSER, of Philadelphia, in his paper on the subject stated that he had arrived at the following conclusions in respect to this disease: 1. Primary cancer was not so rare a dis-

ease as we had been led to believe. 2. It occurred in females three times as often as in males. 3. The larger number of cases occurred before sixty, and it was not a disease of later life, as had been stated. 4. Gallstones were an exciting cause, especially in a person predisposed to this affection. 5. The organ was not generally much enlarged except occasionally by the secondary pressure of dilatation. 6. Metastasis was not widespread. It occurred by contiguity after involvement of neighboring organs. 7. Adhesions to adjacent organs and ulceration and perforation were not uncommon. 8. Pain, jaundice, emaciation, cachexia, and the presence of a tumor were observed in a large number of cases, while indigestion, vomiting, constipation, diarrhœa, and ascites were of more frequent occurrence than supposed, and were important associated phenomena by means of which the disease was recognized. 9. Pain in sixty-two per cent., at first hardly definite, became localized to the right hypochondrium, and was lancinating. 10. Jaundice appeared in sixty-nine per cent. of the cases, gradually increasing in intensity. 11. The progress of the disease was continuous to a fatal termination. 12. Complications were due to occlusion of the ducts, ulceration and perforation of the gall bladder, secondary growths in various organs, etc. 13. The duration of the disease was about six months, and two thirds shorter in its course generally than any other cancer of internal organs. 14. Death took place from exhaustion, biliary obstruction, metastasis, or peritonitis.

How far may a Cow become Tuberculous before the Milk becomes Dangerous as a Food Supply?—This was the title of a valuable and interesting paper contributed by Dr. H. C. EENST, of Jamaica Plain, Mass. The author had been and still was engaged in the conduct of a long series of elaborately planned and accurately executed experiments upon cows for the purpose of truthfully formulating an answer to a question of vital import to this and all communities. Koch's theory had been that the danger was limited to milk coming from cows with tuberculosis of the lacteal tract. The speaker's conclusions, as the result of work done so far, which it would take still another year to amplify and complete, were as follows: 1. That the milk from cows affected with tuberculosis in any part of the body might contain the virus of the disease. 2. That the virus was present whether there was disease of the udder or not. 3. That there was no ground for the assertion that there must be a lesion of the udder before the milk could contain the infection of tuberculosis. 4. That, on the contrary, the bacilli of tuberculosis were present and active in a very large proportion of cases in the milk of cows affected with tuberculosis, but with no discoverable lesion of the udder.

Dr. H. F. FORMAD, of Philadelphia, read a paper on the **Anatomical and Physiological Relations of Lesions of the Heart and Kidneys.**

The Frequency with which Lead is Found in the Urine.—Dr. JAMES J. PUTNAM, of Boston, read a paper supplementing that on a similar subject last year. He said that the conclusions which his investigations seemed provisionally to justify were as follows:

1. That it was not probable that lead was to be detected in the urine of more than fifty per cent., at most, of persons not presenting symptoms of disease, and the finding of lead in a larger percentage for any special group of cases would be presumptive evidence that lead was connected, directly or indirectly, with the production of the symptoms.

2. That lead was an occasional cause of pure neurasthenic symptoms, and the presence of a fine muscular tremor strengthened the probability of this diagnosis.

3. That workers in rubber were liable to suffer from lead poisoning.

He then went on to state the results of observations and analyses, and illustrated his subject by microscopical sections depicting the morbid changes in the spinal cord consequent upon lead poisoning. He stated, however, that there was obviously a danger in seeking to account for pathological conditions of obscure origin that arose in the presence of an agent like lead. We might too readily, by including symptoms due to some other cause, obscure instead of illumining the true clinical picture. The summing up of one of the author's cases typically exemplifying the theory that lead might act as an indirect cause of spinal sclerosis by causing general anæmia and exciting hypertrophy of small vessels ran thus:

A man in middle life, living under comfortable circumstances, suffered for two years with paræsthesia, anæsthesia, and progressive muscular weakness, with focal symptoms. He had exaggerated knee-jerk, ankle clonus, and a moderate diminution of electrical reactions. These symptoms were associated with very marked paleness of the skin, which was of a light-yellow cast. General emaciation and weakness ensued, the whole increasing steadily and terminating in complete paraplegia, incontinence of urine, slight cerebral symptoms of a general character, and death apparently from exhaustion.

To explain all this, there were found anatomically, besides generalized anæmia, which the author was not in a position to refer to as a definite cause, a combined sclerosis of the posterior and lateral columns of the spinal cord, and, representing a later process, a subacute breaking down of the tissues at the seat of the older sclerosis; also, beyond the limits of these areas, more or less hyaline hypertrophy of the vessels, degeneration of the ganglion cells of all the groups in the middle of the lower dorsal region, diminishing in intensity above and below. There was also a marked degeneration of the posterior nerve roots of the dorsal and lumbar portions and, to a lesser extent, the anterior roots, and this process was not characterized by signs of acute inflammation, except, to some extent, at the level of the greatest active change. There were to be found also indications of some degeneration of the muscular and cutaneous nerves, though far less than would be expected had the whole process been primarily one of neuritis. The patient's occupation had exposed him to chronic lead poisoning, and lead had been twice found in his urine.

Dr. F. GERVAIS ROBINSON, of St. Louis, read a paper on **The Contagium of Diphtheria.**

Hot-air Inhalations in Tuberculosis.—A paper on this subject, contributed by E. L. TRUDEAU, of Saranac Lake, N. Y., aimed a telling and merciless blow at the recently vaunted and loudly heralded method of Weigert. The clinical evidence had brought no positive proof in favor of the treatment, and from the bacteriological research the following facts were noted:

In all the cases the bacilli which were present before treatment remained in the sputum, and no effect was produced on this important element of the disease. The allegation of diminished violence was tested by inoculations made on rabbits before, during, and after treatment. The sputum of one of the patients who improved was found, fifteen weeks after the uninterrupted daily breathing of hot air, to produce tuberculosis in the animals injected as promptly and to a similar extent as that injected before the treatment had been instituted.

Conclusions.—(1) The therapeutic value of hot-air inhalations in phthisis was doubtful; (2) the evidence obtained by the bacteriological study of the cases recorded did not confirm the assumption that inhalations of heated air could either prevent the growth of the tubercle bacillus in the lungs of living individuals or diminish the violence of this microbe when it had gained access to them.

Election of Members.—The following-named gentlemen were elected members: Dr. William G. Thompson, Dr. William H. Thomson, and Dr. J. West Roosevelt, of New York; Dr. Charles Carey and Dr. Charles G. Stockton, of Buffalo; Dr. Victor C. Vaughan and Dr. Heneage Gibbes, of Ann Arbor, Mich.; Dr. Charles W. Purdy, of Chicago; Dr. Starling Loving, of Columbus, O.; Dr. W. H. Geddings, of Aiken, S. C.; Dr. William C. Dabney, of Charlottesville, Va.; Dr. B. F. Westbrook, of Brooklyn; and Dr. Henry P. Walcott, of Cambridge, Mass.

Officers for the Ensuing Year.—The following officers were elected: President, Dr. S. C. Busey, of Washington; first vice-president, Dr. William Pepper, of Philadelphia; second vice-president, Dr. Henry M. Lyman, of Chicago; recorder, Dr. I. Minis Hays, of Philadelphia; secretary, Dr. Henry Hun, of Albany; treasurer, Dr. W. W. Johnston, of Washington; member of council, Dr. G. Baumgarten, of St. Louis; representative on the Executive Committee of the Congress of American Physicians and Surgeons, Dr. William Pepper.

The Next Annual Meeting.—Dr. Busey asked that the date of the next meeting be fixed between the 30th of May and the 15th of June, 1890. This was agreed to and no more exact date was fixed.

Book Notices.

The Pathology, Clinical History, and Diagnosis of Affections of the Mediastinum other than those of the Heart and Aorta. With Tables giving the Clinical History of Five Hundred and Twenty Cases. Being an Essay to which was awarded the Fothergillian Medal of the Medical Society of London, March, 1888. By HOBART AMORY HARE, B. Sc., M. D., etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 9 to 150.

This is a very carefully prepared and valuable monograph, on a subject that has received but little attention. Affections of the mediastinum are among the rarest and most difficult to diagnose, and are confined, for the most part, to the neoplasms found in this region and to mediastinal suppuration. In this essay five hundred and twenty cases of mediastinal disease are tabulated under ten different heads, including mediastinal cancer, sarcoma, lymphoma, fibroma, hæmatoma, abscess, non-suppurative inflammation, dermoid cysts, hydatid cysts, and other various forms of mediastinal disease. Nearly half of all the cases come under the head of cancer or that of sarcoma; one hundred and fifteen are cases of mediastinal abscess, and the remainder are made up of small numbers of cases of various forms of disease. The pathology, ætiology, and symptomatology of the more common forms of disease found here are taken up separately, and the book concludes with a short summary embodying the most important deductions to be made from the study. These are: 1. That cancer is found in the mediastinal spaces more frequently than any other affection. 2. That abscess is the morbid process next in frequency of occurrence. 3. That sarcoma occupies the third position as to frequency. 4. That lymphomata occupy the fourth place, but are much rarer than the others mentioned. 5. That the anterior mediastinum is affected far more frequently than the two other spaces. 6. That most mediastinal growths occur in adults. 7. That more males than females are affected by mediastinal disease, be that disease what it may. 8. That cancer and sarcoma of these spaces are necessarily fatal. 9. That abscess is recovered from in about forty per cent. of the cases.

It seems probable that from these tables carcinoma appears to occur more frequently than is really the case, for in a large proportion of the cases reported in this monograph the diagnosis was not confirmed by microscopical examination. While there can, perhaps, be no doubt that primary cancer does occur in this region, still, it is equally certain that sarcoma or lymphoma is far more frequent than cancer. The characters of the tissue contained in the mediastinum are such as become most frequently the site of development of lymphomata or sarcomata and not of carcinomata.

The award of the Fothergillian medal for this essay is ample proof of the careful and scholarly character of the work. It will well repay a careful perusal.

Transactions of the Royal Academy of Medicine in Ireland. Vol. VI. Edited by WILLIAM THOMSON, M. A., F. R. C. S., General Secretary, etc. Dublin: Fannin and Company, 1888. Pp. xxxv-482.

THIS volume, like those that have preceded it, contains a large number of exceedingly interesting and important papers, many of them profusely illustrated. Among those read in the Section in Surgery may be mentioned one on "Enterectomy and Enterorrhaphy," by Mr. J. S. McArdle, surgeon to St. Vincent's Hospital; a "Report of a Case of Epidural Hæmorrhage with Secondary Trephining," by Mr. W. Thornley Stoker; and one on "The Treatment of Advanced Conditions of Equino-varus," by Mr. R. L. Swan. Among those read in the Section in Medicine, there is a paper on "The Fever of Over-exertion," by Dr. J. F. Knott, of more than usual interest, and also one by the same writer on "Hereditry in Purpura Hæmorrhagica." There are reports of an interesting case of a rare form of mental disease, the *Grübelnsucht* of the Germans; gastric epilepsy; foreign body in the œsophagus; and traumatic aphasia. A careful article on "The Distribution of Enteric Fever in Dublin and its Causes" is contributed by Dr. J. W. Grimshaw and Sir Charles A. Cameron; and one on "Epidemic Dysentery and its Etiology," by Mr. Conolly Norman. There are also some careful notes on "Anatomical Variations and Anomalies," and several interesting papers on obstetrical and gynecological subjects. The illustrations are excellent, and the book has been thoroughly and carefully edited.

Contribution à l'étude des corps étrangers des voies aériennes.

Par le Dr. E. J. MOURE, Professeur libre de laryngologie, otologie et rhinologie, etc. (Communication faite à la Société de médecine et de chirurgie de Bordeaux.) Paris: Octave Doin, 1889. Pp. 5-24.

In this interesting study the author concludes that the use of sternutatories and emetics is inadvisable, sometimes favoring the deeper penetration of the foreign bodies into the air-passages; and considers that the popular treatment of suspending the sufferer by the heels, thus favoring the displacement of the object by gravity, is more desirable. In the latter procedure chloroforming the patient may be advantageous, to prevent laryngeal reflexes and consequent spasm of the glottis. He condemns blind groping in the larynx with the forceps or finger, as local anesthesia with cocaine will allow of exploration with the laryngoscope. If the physician's hand is not sufficiently sure to seize bodies in the ventricles of Morgagni or between the vocal cords with a forceps, he advises tracheotomy rather than thyrotomy. Of course, tracheotomy is advised for bodies that are below the larynx, in the trachea or bronchi.

For obvious reasons operative interference in such cases should not be delayed; and, if the body is not found at the operation, the cannula may provoke attacks of coughing and the body be easily expelled.

BOOKS AND PAMPHLETS RECEIVED.

Ophthalmology and Ophthalmoscopy for Practitioners and Students of Medicine. By Dr. Hermann Schmidt-Rimpler, Professor of Ophthalmology and Director of the Ophthalmological Clinic in Marburg. Translated from the Third German Revised Edition. Edited by D. B. St. John Roosa, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School, etc. One Hundred and Eighty-three Woodcuts and Three Colored Plates. New York: William Wood & Company, 1889. Pp. xv-3 to 571.

Outlines of the Clinical Chemistry of the Urine. By C. A. MacMunn, M. A., M. D. (Dub.). With Sixty-four Woodcuts and Plate of Spectra. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xvi-254. [Price, \$3.]

A Manual of Minor Surgery and Bandaging, for the Use of House-Surgeons, Dressers, and Junior Practitioners. By Christopher Heath, F. R. C. S., Surgeon to University College Hospital and Holme Professor of Clinical Surgery in University College, London, etc. Ninth Edition. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xvi-361. [Price, \$2.]

On the Healing of Aseptic Bone Cavities by Implantation of Antiseptic Decalcified Bone. By N. Senn, M. D., Ph. D., etc. [Reprinted from the "American Journal of the Medical Sciences."]

The Effect of the Entrance of Air into the Circulation. By H. A. Hare, M. D. [Reprinted from the "Therapeutic Gazette."]

The Disposal of the Dead. By John M. Peacocke, M. D., Brooklyn, N. Y. [Reprinted from the "Brooklyn Medical Journal."]

Rapid Dilatation of the Cervix Uteri. [Reprinted from the "Transactions of the Ninth International Medical Congress."]—Surgical Treatment for Laceration of the Perinæum and Pelvic Floor. [Reprinted from the "Transactions of the American Association of Obstetricians and Gynecologists."]—A Successful Vaginal Hysterectomy for Carcinoma Uteri. [Reprinted from the "Transactions of the Southern Surgical and Gynecological Society."]—The Pathology of Ectopic Pregnancy and Pelvic Hæmatocele. [Reprinted from the "American Journal of Obstetrics and Diseases of Women and Children."] By W. H. Wathen, M. D., Louisville, Ky.

A Report upon Two Hundred Experimental Cases of Injection of the Brown-Séquard Testicular Secretion. By H. C. Brainerd, M. S., M. D., Cleveland, O.

Note on Some Forms of Purpura Rheumatica. By William A. Edwards, M. D., San Diego, Cal. [Reprinted from the "University Medical Magazine."]

Cirrhosis of the Pancreas; or, Pancreatic Anæmia. By C. W. Earle, M. D., Chicago, Ill. [Reprinted from the "Transactions of the Thirty-fourth Annual Meeting of the Illinois State Medical Society."]

The Responsibilities and Duties of the Medical Profession regarding Alcoholic and Opium Inebriety. Address of President C. W. Earle, delivered at the Thirty-ninth Annual Meeting of the Illinois State Medical Society, May 21, 1889.

The Treatment (not Preventive) of Puerperal Fever. By C. W. Earle, M. D., Chicago. [Reprinted from the "Chicago Medical Journal and Examiner."]

Cephalæmatoma of the New-born. By C. W. Earle, M. D., Chicago. [Reprinted from the "Journal of the American Medical Association."]

Retained Débris as One of the Causes of Puerperal Fever. The Intra-uterine Douche and Curette. By C. W. Earle, M. D., Chicago. (Read before the Chicago Gynecological Society.)

Antiseptic Obstetrics. By C. W. Earle, M. D., Chicago. [Reprinted from the "Transactions of the Thirty-seventh Annual Meeting of the Illinois State Medical Society."]

The Influence of Sewerage and Water Pollution on the Prevalence and Severity of Diphtheria. By C. W. Earle, M. D., Chicago. [Reprinted from the "Archives of Pediatrics."]

Observations in Vienna. The General Hospital, Billroth, Carl Braun, Bandl, and Others. By C. W. Earle, A. M., M. D. [Reprinted from the "Western Medical Reporter."]

Infant Feeding. By C. W. Earle, M. D., Chicago. [Reprinted from the "Journal of the American Medical Association."]

Lavori dei congressi di medicina interna. Primo congresso tenuto

in Roma nell' Ottobre 1888. Pubblicazione fatta per mandato del comitato ordinatore del Professore Edoardo Maraghano, Ordinario di clinica medica nella R. Università di Genova.

Reports on the Progress of Medicine.

CUTANEOUS AND VENEREAL DISEASES.

BY GEORGE THOMAS JACKSON, M. D.

Concerning some New Dermatological Remedies.—Salol, oxynaphthoic acid, salicylate of mercury, and anthrarobin are the new remedies which Schwimmer reports upon ("Wien. med. Wochenshft.," 1889, Nos. 3 *et seq.*). Salol he used in one hundred cases. Twenty-five of these were simple venereal ulcers, of which twenty-three were healed and two were not. The average duration of treatment of those that got well was twenty-six days, the longest duration having been fifty days, and the shortest twenty-six days. Fifteen cases were of chancroids with bubo. The results were various, some cases doing well and some being uninfluenced, the latter being those in which suppuration was profuse. Thirty-five initial lesions were treated with the drug. In some cases remarkably prompt healing was effected, the normal condition being reached in two to three weeks. He found that the best results were attained by powdering the floor of the ulcer with salol and covering the edges with mercurial plaster. In ten cases of ulcerating syphilides the drug was found to be useful applied in powder. In fifteen cases of simple ulcer of the leg, salol failed to cure one. Schwimmer concludes from these experiments that salol may be used as a substitute for iodoform, though not so efficacious in all forms of venereal ulcers, especially as it is devoid of smell. It is best applied as a powder—two parts to one of starch. Oxynaphthoic acid is a white, odorless powder of bitter taste which is insoluble in water, but freely soluble in warm glycerin and ethereal and fatty oils. This was tried in venereal ulcers, scabies and other animal parasitic affections, and prurigo. In ten cases of venereal ulcers the results were unsatisfactory. In scabies its action was so prompt that Schwimmer now uses it as his only remedy, employing an ointment of ten parts each of oxynaphthoic acid, white chalk, and green soap to eighty or one hundred parts of lard. It causes no irritation to the skin, and cures in three or four days. No constitutional effect was noticed. The ointment is rubbed into the affected parts and then starch is powdered on. This is repeated twice daily, and a bath is taken at the end of the fourth day. In prurigo it lessened the itching, and healed the excoriations in a five- or ten-per-cent. ointment. The salicylate of mercury was used as an injection of one one hundredth of one per cent. strength in twenty-five cases of gonorrhœa, but was not satisfactory. In venereal ulcers it was used as an ointment in the strength of about two grains to the ounce, with fairly satisfactory results. It was tried in seventy cases of constitutional syphilis, and showed itself as a valuable remedy. It soon enters into the circulation and is prone to cause stomatitis. It was administered both as a powder and pill, and in the following combinations: ℞ Salicylate of mercury, 7½ grains; tincture of opium, 1½ drop; white sugar, 45 grains. To be mixed and divided into ten powders; one to be given twice a day. ℞ Salicylate of mercury, 15 grains; tincture of opium, 3 drops; extract of gentian, a sufficient quantity. To be mixed and divided into twenty pills; one to be given two or three times a day. Besides causing stomatitis, it also may give rise to erythema and urticaria. Anthrarobin was used in twelve cases of psoriasis, four of herpes tonsurans, six of eczema marginatum, and two of pityriasis versicolor. In psoriasis it was found of little use, being much less active than chrysarobin, pyrogallol, or white precipitate. In the parasitic diseases it acts promptly in a ten-per-cent. solution in collodion.

Creolin Eczema.—Dr. Wackez, of Munich, has given this much-praised remedy a trial in seventeen cases of slight wounds of children, and reports ("Therapeutische Monatsshft.," June, 1889, p. 264) that in ten cases the wounds healed by first intention, while in seven cases there was an outbreak of eczema soon after beginning its use. The

eczema usually began on the second day, taking its origin at the site of the wound and being accompanied by rise of temperature of the skin, swelling of the neighboring lymphatics, loss of appetite, headache, and vomiting. The solution used was 1 to 1,000. Examination of the urine showed that it contained phenol.

Formulæ for Iodol Preparations.—The following are given ("Mntshft. f. p. Dermat.," 1889, No. 9): 1. A solution: Iodol, 1 part; alcohol, 16 parts; and glycerin, 34 parts. 2. Iodol gauze: Iodol, resin, and glycerin, each 1 part; alcohol, 10 parts. 3. Collodion with iodol: Iodol, 10 parts; alcohol (94 per cent.), 16 parts; ether, 64 parts; pyroxylin, 4 parts; castor-oil, 6 parts.

A New Ointment Base is proposed by Wells ("Pharm. Post.," abstr. "Montshft. f. p. Dermat.," 1889, No. 9) and is made by melting three pounds of fresh goose fat in an enameled pan, passing it through muslin, and stirring into the mass while still warm half a pound of cacao butter. The mass is to be stirred with a wooden spoon till cool. It is asserted that this ointment is very readily absorbed.

A "Minimal Cautery."—One of the happy accidents that so often suggest useful inventions has recently befallen Dr. P. Tæuzer, who stumbled ("Monatshft. f. p. Dermat.," 1889, viii, 401, No. 9) upon the fact that by touching the needle attached to the negative pole of the battery and inserted into a hair follicle, with the opposite pole, the hair would be permanently destroyed. Here the action is not electrolytic but rather galvano-caustic, but so indirect and mild as to cause minimal damage to the skin, producing a scarcely perceptible scar. This put the doctor upon the idea of making a cautery to which he gave the name of "*Minimalbrenner*." It is made as follows: A piece of medium-sized copper wire about three inches long is fastened into the end of a glass rod about ten inches long by melting the glass. Its free end is then sharpened as fine as possible by filing, and about it is wrapped a fine platinum thread in spiral turns, beginning about half an inch from the point and ending about an inch and a quarter from the end of the glass rod. Both ends of the platinum wire are fastened to the conductors from the battery. The conductors are then bound down to the sides of the glass rod. The current passing through the instrument will cause the platinum thread to glow, and the copper needle will become very hot but not glowing, causing a minimal amount of cauterization. The instrument is used by making multiple punctures, and the operation is well borne. The proper degree of heat is shown by the instrument being easily withdrawn after the puncture. It is useful for a great many purposes, as for the treatment of nævus, lupus erythematosus, and the like.

Hydroxylamine in Psoriasis.—Fabry, an assistant physician in Doutreleont's wards in Bonn, repeats ("Arch. f. Dermat. u. Syph.," 1889, xxi, Heft 2, p. 203) the warning as to the poisonous qualities of this comparatively new drug, but thinks that its use upon the skin is quite safe under proper precautions. In psoriasis he thinks that its absorption is least to be feared. In the treatment of this disease he used either a spirituous solution (℞ Hydroxylamine, gr. vj-vij; alcohol, ʒ iij; calcium carbonate, enough to neutralize) or an aqueous solution (one part to one thousand, with enough calcium carbonate to neutralize). The first solution is to be used with a brush, and the second is to be applied on wet cloths. Before using either preparation the scales are first to be gotten rid of by prolonged baths, rubbing with green soap, and ununctions of ten-per-cent. zinc ointment. As a rule, pyrogallol or chrysarobin was used on one half of the body to make a comparative test of the newer remedy, as used upon the other half. For a few days after the first application of the remedy there was marked increased redness of the spots and surroundings. Soon, however, there was a paling of the spots, then only pigmentation, then an absolutely normal condition of the skin. When a ten-per-cent. solution of the remedy was used, the epidermis was raised in large lamellæ, and flat bullæ, containing a small amount of serum, appeared, which soon dried up. The normal skin showed the same phenomena. Hydroxylamine proves itself to be a very irritating substance, its irritant action varying with different skins. It is necessary in some cases to use a solution not stronger than one to five hundred and increase strength *p. r. n.* The drug produces great burning and pain in some individuals, so that its use has to be stopped. The paintings are to be repeated twice a day; the compresses to be renewed every two hours, and only applied to small areas at a time. The urine

is to be watched for the appearance in it of albumin, and symptoms of poisoning carefully noted. Relapses occur after its use just the same as after all other remedies. The advantages of hydroxylamine are that it does not irritate the skin as much as pyrogallol or chrysarobin, that it is cheap, that it does not stain the under-clothing, and that it is quite as rapid in its curative effects as the drugs just named. It took from four to six weeks to remove all traces of the disease in an inveterate case. It should always be remembered that, should symptoms of irritation show themselves, the remedy must be stopped, and some soothing application made until the irritation is reduced, when the remedy may be resumed.

"Dermatoneuroses Indicatrices."—By this term Leloir means ("Ann. derm. et syph.," 1889, x, No. 5) that a number of eruptions depend upon nervous diseases, and appear as forerunners of grave manifestations on the part of the nervous system. They may be indicative of affections of the spinal medulla, or of cerebral affections, or of the peripheral nervous system. They may take the form of erythematous or oedematous lesions, or of hæmorrhages, or of papules and vesicles like an outbreak of eczema, or bullous eruptions, zoster-like or ulcerative lesions, or hypertrophic or atrophic, or pigmentary. Examples of many of these lesions having appeared for a greater or lesser length of time before the appearance of other nervous phenomena are given. Remembering this, in many cases we may well neglect to treat the skin and address ourselves directly to the nervous system.

Alopecia Neurotica is that form of baldness which occurs in a most irregular manner, sometimes unilateral, sometimes in circumscribed, variously shaped and sized areas which shade off into the surrounding parts. It occurs after cerebral disturbances, injuries to peripheral nerves, psychoses, neuroses, atrophies, or other trophic disturbances. Sometimes the bald tracts follow the well-known course of a nerve. Schütz now reports ("Münch. med. Wochenscht.," 1889, xxxvi, 124) six cases of this disease. Of these, one patient was wounded in the back of the head with a barber's shears, the injury being shortly followed by hair-fall. The second received a fall upon the right forehead, followed by unconsciousness. Two weeks after the injury the hair fell from the right side of the head in streaks. Treatment: Galvanism, salt-water baths, washing the head twice daily with spiritus saponis kalinus, followed by rubbing in an ointment of veratrine (one to fifteen). The hair did not grow in for nearly three years. The third had no history of injury. The fourth case was limited to one side of the head, and occurred with attacks of phlyctenular conjunctivitis. In the fifth case both the scalp and chin were affected. The patient was a nervous and hypochondriacal man, and had a good deal of headache and burning of the scalp and chin. The sixth case was a symmetrical one of the beard, with a great deal of itching. All but two of the patients were boys, and all were weak and nervous. The reaction of the skin of the affected areas was normal. In most of the cases the bald space was linear in shape, enlarging especially on its peripheral end, forming a three-cornered figure.

Rejuvenescence of the Hair of the Head and Beard.—A case of this rare occurrence is reported ("Lancet," July 20, 1889, p. 113) by Dr. O'Neil, the subject being a man sixty-five years of age, who was under the author's care for paralysis and accompanying cerebral disturbance. He had been both bald and gray for many years, when during his sixty-second year his hair began to grow in the bald places, and brown hair began to replace the gray. At last his hair had regained its youthful fullness and color. He had been addicted to the use of chlorodyne for some six months previous to the regeneration of the hair, and he and his friends ascribed the hair growth to the excessive use of the drug.

The Treatment of Hypertrichosis, as recommended by Jamison, of London ("The Practitioner," 1889, xliii, 1), consists in the free use of ethylate of sodium. It seems specially applicable to large, hairy nævi. The case reported was that of a child first operated on at three months of age, and several years were employed in the treatment. After five years the case is reported as cured and without disfigurement. It was a hairy mole of the whole of the right side of the forehead. The operation was done under chloroform.

Trichomycesis Nodosa a Bacillary Disease of the Hair.—This disease is, according to R. G. Patten ("Brit. Med. Jour.," 1889, i, 1166), "a peculiar condition, generally nodose in character, affecting the hairs

of the axilla and scrotum, and due to the growth and encapsulation in the cortical layers of the shaft of a small rod-shaped bacterium." The author thinks that the disease may take on different appearances at times, such differences depending upon varying and individual conditions of heat and moisture and personal habits of life. It is probably the same disease that Paxton described in 1869, and that Wilson called "leptothrix" in 1878. It has been confounded with trichorrhæxis nodosa. Eberth, in Virchow's "Archiv.," Bd. lxii, p. 504, was the first even to approximate to a correct description of the bacteria causing the disease. It is due to a short rod bacterium, the colonies of which, lying between the superficial cortical layers and enveloping themselves in a firm, homogeneous capsule, cause respectively the splitting of the fibers, and the nodes and surface irregularities which are so characteristic of the disease. To the naked eye the hairs present an abnormally dry and dull appearance. They feel rough and knotted. They look as if they had been steamed. The roughness is due to the projection from the sides of the shaft of numerous very minute concretions, which may assume a nodular or diffuse form. The diffuse form may extend along nearly the whole length of the shaft, with narrow intervals of sound hair. The nodular form consists of small rounded masses, generally most thickly placed on the terminal third of the shaft, and usually separated by considerable intervals of sound hair. Both forms may be present on the same hair. They are firmly adherent, and can only be scraped off with injury to the hair. The hairs are not brittle, have little tendency to break at the nodes, and, as a rule, end in fine points beyond the disease. Occasionally they do break through a node, and the end splits up into fibers. It may affect any part of the hair. Nodes are seldom found except on the peripheral part of the hair. If the disease travels up toward the bulb it assumes the diffuse form. It never penetrates the follicle. The bacilli are deposited from without on the ends of the hair and travel up until they find a fit habitat, when they begin their attack and form aggregations or nodes. At the junction of the outer and middle thirds of the hair the nodes are separated at longer intervals, or may become diffuse, gradually disappearing as the follicle is reached. The development of the bacilli can best be studied at the part nearest the follicle. The maceration caused by the warmth and moisture of the affected parts loosens the epidermal scales of the hair and allows of entrance of the bacilli. These lie at first in small pits or depressions, and, as they develop, cause by their growth a longitudinal splitting of the cortical fibers, and finally a rupture and curling up of the terminal ends. At the same time a hard, homogeneous, granular substance is produced, which lies between and around the bacteria, and forms the nodes into which the curled ends of the ruptured fibers can be seen projecting. This substance serves as a splint and prevents fracture. It is exactly similar to the substance produced by lice, is of a pale-yellow color, and stains a deep brown with iodine and a dark purple with methyl-violet. The nodular form is rarely seen on the scrotum, where it is not uncommon to have no outlying masses, but a superficial burrowing of the shaft by the bacilli. In some cases the concretions are placed laterally. The bacilli are short, fine rods with slightly rounded ends, two or three times as long as broad, and about one fourth the diameter of a red blood-corpuscle. They stain readily with aniline dyes, but best by Gram's method. They are non-motile, exhibiting only molecular movement. They are sometimes joined together, but do not form long threads. They are not cultivable by ordinary methods.

The Favus Fungus.—Some two years ago Quincke detailed his experiments in the cultivation of the favus fungus, and showed that there were three species, which he named α , β , γ fungi. These results have been reported in our columns. Now Elsberg, of Warsaw, details ("Archiv f. Derm. u. Syph.," 1889, xxi, Heft 2, p. 179) his experiments in the same direction, and comes to the conclusion that, though there are seemingly two varieties of the favus fungus, they are in reality one and the same fungus.

Treatment of Chloasma.—Besnier affirms ("Jour. de méd.," Paris 1889, May, p. 202) that chloasma can be made to disappear by the following treatment: The part is to be scrubbed with green soap until it is somewhat reddened. Then equal parts of mercurial ointment and vaseline are to be worn all night spread on muslin and covered with rubber cloth. This is to be washed off with warm water in the morn-

ing, and during the day an ointment composed of carbonate of bismuth and kaolin, each $\bar{3}$ ij, and vaseline, $\bar{3}$ j, is to be worn.

The Histology of Rhinoscleroma is put forth at much length by Dr. V. Mibelli in the "Mouatshefte f. prakt. Dermatologie," 1889, vol. viii, No. 12. The study was made upon material obtained from a patient of the doctor's, an Italian. He found the most pronounced alterations in rhinoscleroma, represented by an unusually soft, almost fluid tissue, which was the most characteristic material found in the disease. This is not found everywhere, but mostly deep down in the coverings of the nose next to the cartilage. About it is always placed a more or less indurated cutaneous tissue, and it is the hardness of this which gives us the clinical idea of the disease. Little islands of this soft substance being scattered through the whole diseased parts, gives us a very varying picture when seen on section. The skin follicles are sometimes destroyed, sometimes intact and normal. The sweat-glands are generally wanting, though their ducts may be found either intact, or widened, or with their walls thickened. The blood-vessels have about their walls and within them an infiltration of round cells, but these are usually normal in appearance. In some places the lumen of the vessels is narrowed, and in some entirely obliterated, while in others there is well-marked endarteritis obliterans. The lymphatics are greatly dilated. It would seem that the skin and the outer parts of the nasal mucous membrane become only secondarily and very gradually diseased from the deeper-lying parts. The characteristic cells of rhinoscleroma are uniformly round, strongly refractive to light, and contain a coarsely granulated, sharply contoured protoplasm, and a large oval or round, light-colored nucleus. In the neighborhood of these cells are often seen larger round cells, with clear, finely granulated, irregularly contoured protoplasm, and with a less bright nucleus. Rhinoscleroma bacilli (enveloped in a capsule) are found in this protoplasm. It is probable that the damage caused by the bacilli in this disease is due far more to their mere presence and growth than to any poisonous products generated by them. [This article contains much of interest to the histologist, but, unhappily, does not lend itself easily to the purposes of the abstractor.]

The Treatment of Lupus, as now practiced in Hamburg, is, according to Clasen ("Monatsht. f. prakt. Dermatologie," 1889, Bd. viii, No. 11), the following: The Paquelin cautery is first used to destroy the lupus tissue, the patient being under chloroform. Upon the fresh tissue surface is penciled or rubbed a solution of corrosive sublimate, gr. 25; carbolic acid, $\bar{3}$ jss.; and ether, $\bar{3}$ j. M. Then a plaster muslin is applied, either of salicylic acid, five drachms, and birch creasote, ten drachms to the yard, or of salicylic acid, five drachms, guaiacol, two drachms and a half to the ounce, the plaster being cut a little larger than the surface to which it is to be applied. The whole is covered with a zinc paste and a bandage. The dressing is changed every twenty-four hours, the surface of the wound being washed off and penciled with cocaine, and suspicious points bored out before the plaster is reapplied. A cure is effected in two or three weeks. For the plaster-muslin may be substituted an ointment of twenty parts of salicylic acid and forty parts each of creasote and cerate, which is to be spread upon doubled muslin and covered with a solution of gutta percha. Where it is impracticable to use any energetic treatment, the cure can be effected by the use of the salicyl-creasote ointment during the night, and by painting with an eighty-per-cent. solution of silicate of potassium in linseed-oil during the day. If the lupus patch is very much inflamed, it should be painted with a watery solution of ichthol during the night, and simply anointed with the ointment during the day.

Acquired Leprosy as seen in England.—Hutchinson believes ("Brit. Med. Jour.," June 29, 1889, *et seq.*) that the poison of leprosy is a specific one, and that the disease is acquired, not by contagion, or climate, or quality of food, but by the ingestion of "some very special kind of poison of rare occurrence taken in connection with food." The bacillus of Hansen may possibly be the bearer of the poison. He would direct subsequent investigations to the food question and the special poison therein residing. The disease may be arrested by change of climate to a region where it is not endemic. Some twelve cases of leprosy are cited to show that the eating of fish plays an important part in the dietary of leprosy patients. They had all acquired the disease in countries in which leprosy was endemic.

A Case of Leprosy apparently arrested is reported by Cottle ("Brit. Med. Jour.," July 6, 1889, p. 12). The subject had resided for twenty-four years in Jamaica, and the disease appeared some seven months after his return to England. The treatment used was chaulmoogra-oil, in doses of from twenty to ninety minims three times a day. Improvement began under doses of sixty minims t. i. d., and in about one year he had hardly any symptom of his disease. The oil was taken continuously for nearly ten years, and the patient is still under observation with no return of his disease.

The Cure of a Case of Leprosy is reported by Dr. Sandreczky, of Jerusalem, in the "Monatsht. f. prakt. Dermatologie," 1889, No. 11. It was that of a child of eight years, in whose family and connections leprosy had never occurred. He was under treatment for four years, and it was directed upon general principles, such as fresh air and exercise, massage, iron and quinine; bathing with green soap, sulphur, iron, or salt, the water being very hot and the bath being followed by free sweating under proper covering. The tubercles were treated with chrysarobin, green soap, or iodine without any effect. After two years of general treatment marked improvement showed itself. There has been no relapse, and all signs of the disease have disappeared excepting the atrophy of the hands, which is, of course, permanent. The doctor does not believe that the disease is contagious, and says that that is the view held by the inhabitants of the country.

The Chrome-Water Treatment of Syphilis.—Dr. Güntz, of Dresden, again brings to the notice of the medical profession the virtues of this, his method, of treating syphilis ("Allgemein. Wieu. Med.-Zeit.," 1889, No. 14 *et seq.*). The impossibility of finding any universal remedy for the disease is granted, and then the oft-repeated failure of mercury to accomplish a cure is fully dwelt upon, while it is not denied that often it does excellently well. But, alas! it sometimes is in itself responsible for the death of the patient! This it does by causing a disintegration of the tissues. Against this chrome-water works, and, when used with discretion, it will save from death many a person with malignant syphilis. Chrome-water gives the patient a blooming appearance, in marked contrast to the "cheesy" look of him who imbibes mercury. The weight of the patient is reduced, but when its use is combined with that of salt-water baths, extreme thinness is not attained. Never does "that dangerous fatty degeneration" take place that is so often seen with quicksilver after many months or years of small doses. While eighty-two per cent. of the patients treated with mercury suffer from relapses, chrome-water is often abortive in the stage of the initial lesion. It is always efficient. Under its use syphilitic parents beget sound children. You can get this wonder-working water of a certain apothecary in Dresden, and there, too, you may find its enthusiastic inventor.

A Study of Syphilis contracted at Advanced Age has been made by Renault ("Ann. de derm. et syph.," 1889, No. 3, p. 165). The subjects were individuals forty-five years old or over, and the number of them is comparatively small. The period of incubation of the chancre is probably somewhat longer than in younger subjects. The accompanying adenitis is somewhat slower to appear, say from the twentieth day to the seventh week. The initial lesion is likewise slower in its development and remarkably hard. It takes six or seven weeks to heal, or about one third longer than in the younger man. It also shows a decided tendency to enlarge and become phagedenic, and may even become gangrenous. Its diagnosis is often difficult, especially from cancer when located upon the face, and then we must await further developments. The syphilitic fever is often well marked and of typhoid character, or it may simulate an attack of acute rheumatism. The diagnosis is difficult and we must await further manifestations. The relative time of outbreak of the secondary eruptions is not well determined, but probably the interval between the initial lesion and the eruption is longer than in earlier life. The roseola is usually slight and sometimes limited to certain regions, so as to be readily overlooked. The squamous syphilide is very rare. The papulo-tubercular syphilide appears early. The papulo-squamous syphilide is often so covered with scales that it has the appearance of psoriasis. It is also obstinate to treatment, prone to relapse, and at times is followed by purpuric spots. Tertiary lesions appear early in many cases. Mucous patches tend to ulcerate. Multiple adenopathies are the rule. Gummy tumors are frequent, ulcerate somewhat, and heal slowly. Neuroses are common and

appear early. Deafness and ocular disorders are more common than in earlier years, and set in early. Anæmia is marked, as is also cachexia. There is hardly any intermediate stage between the so-called secondary and tertiary periods. The most frequent tertiary manifestations are the tuberculo-ulcerous syphilide and the purely ulcerative. They are characterized by—1. Confluence, tending to invade the whole surface of the body at the same time. 2. Their appearance and changes. They are habitually covered with crusts, and tend, according to some observers, to take on a cancerous change in certain locations. 3. Gravity. The ulcers tend to become large and deep. They become phagedenic or gangrenous, and often lay bare the muscles. 4. Tenacity. They are extremely rebellious to treatment. Indeed, the prognosis of syphilis contracted at an advanced age is bad, and should make the physician use all his skill. This depends upon the fact that old age is naturally the time when retrogressive changes take place and vitality is lowered. Our treatment of these cases should be directed against both the virus and the debility incident to age. Tonics should be given along with the mercury and iodine, and it is usually best to combine the iodide of potassium with the mercury. Unhappily, mercury in these cases is very liable to provoke salivation, stomatitis, and diarrhœa, and its use must be stopped on their appearance. On account of the tendency to diarrhœa it is desirable to use an astringent with the mercury.

Miscellany.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending October 4th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—															
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.						
New York, N. Y.	Sept. 28.	1,582,975	641					7	3	17	1	12							
Philadelphia, Pa.	Sept. 28.	1,040,245	312					15	2	3		2							
Brooklyn, N. Y.	Sept. 28.	834,607	308					5		13		2							
Baltimore, Md.	Sept. 28.	500,343	161					9		5									
St. Louis, Mo.	Sept. 28.	450,000	157					7	2	5		2							
New Francisco, Cal.	Sept. 20.	330,000	107					3		3									
New Orleans, La.	Sept. 21.	254,000	130							1	3	1							
Washington, D. C.	Sept. 21.	250,000	93					8		4		1							
Detroit, Mich.	Sept. 21.	250,000	72					1		6		1							
Cleveland, Ohio	Aug. 24.	235,000	110					8	3	10		1							
Cleveland, Ohio	Aug. 31.	235,000	83					4	2	3		1							
Cincinnati, Ohio	Sept. 28.	225,000	121					1		14		2							
Minneapolis, Minn.	Sept. 21.	200,000	43					1		3									
Minneapolis, Minn.	Sept. 28.	200,000	50					6		6									
Providence, R. I.	Sept. 28.	127,000	54							1	1	1							
Indianapolis, Ind.	Sept. 27.	125,000	35					3		1	5								
Richmond, Va.	Sept. 21.	100,000	35					3		1	5								
Richmond, Va.	Sept. 28.	100,000	35							2									
Denver, Col.	Sept. 27.	100,000	43					18		1	1	1							
Toledo, Ohio	Sept. 27.	89,000	31					4		3		2							
Fall River, Mass.	Sept. 28.	69,000	28					3											
Nashville, Tenn.	Sept. 28.	65,153	26					1		1		1							
Charleston, S. C.	Sept. 28.	60,145	56					1											
Lynn, Mass.	Sept. 28.	50,000	15																
Portland, Me.	Sept. 28.	42,000						1											
Galveston, Texas	Sept. 20.	40,000	11					1											
San Diego, Cal.	Sept. 19.	32,000	3																
San Diego, Cal.	Sept. 25.	32,000	7																
Yonkers, N. Y.	Sept. 28.	20,000	12																
Binghamton, N. Y.	Sept. 28.	30,000	10									1							
Auburn, N. Y.	Sept. 28.	26,000	3																
Haverhill, Mass.	Sept. 28.	25,000	8																
Newport, R. I.	Sept. 5.	22,000	10							2									
Newport, R. I.	Sept. 12.	22,000	12							2									
Newport, R. I.	Sept. 19.	22,000	9																
Newport, R. I.	Sept. 26.	22,000	6																
Rock Island, Ill.	Sept. 22.	16,600	5																

Creolin Injections in Dysentery.—“Dr. Sosovski has found large enema of dilute creolin very useful in dysentery. He employed a one-half-per-cent. solution injected into the bowel twice or sometimes three or four times daily, the quantity used for each enema being generally about five pints. The patients did not experience any burning

sensation or abdominal pain. The treatment was employed in sixteen cases, not one of which proved fatal, although a considerable number of patients succumbed to the disease during the same epidemic. In two cases the disease was arrested after the second enema, in nine cases the bloody stools ceased on the third day, in two cases on the fifth day, in one on the sixth, and in one on the ninth. The remaining case, though more obstinate, ultimately recovered completely. In addition to these, two children under a year old were treated successfully by means of creolin enemata. Again, another Russian physician, Dr. Kolokoloff, has used a one-per-cent. solution in a number of cases of adults with complete success.”—*Lancet*.

ANSWERS TO CORRESPONDENTS.

- No. 291.—Those by Chambers and Fothergill.
- No. 292.—Its publication seems to have been suspended.
- No. 293.—The manœuvre of bringing the shaft of the instrument away from the groin and carrying it up over the linea alba.
- No. 294.—Cases have been reported in which the period of incubation seemed to have been less than twenty-four hours.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following :

Authors of articles intended for publication under the head of “original contributions” are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters’ hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer’s name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author’s name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies’ regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

TUBAL PREGNANCY.*

By WILLIAM T. LUSK, M. D.

CASE I. *Tubal Pregnancy; Rupture; Laparotomy; Recovery.*—On the 19th of November, 1888, I was summoned in haste to the bedside of Mrs. S., nineteen years of age, who was suffering from shock and intense anæmia.

Of her history I learned that she had been three years married, and that a year previous she had given birth to a dead child at term. Since her confinement she had suffered from profuse leucorrhœa and pain in the right inguinal region. The patient had passed two menstrual periods, but had had no subjective symptoms of pregnancy. On the 10th of November she noticed a sero-sanguinolent discharge from the vagina. On the 11th she was seized with cramps associated with faintness, with nausea, and at times with vomiting. There was no intestinal disturbance to which the abdominal pains could be referred. Similar attacks, but of less intensity, occurred daily, usually in the morning hour, up to the 18th inst. On that date the pains had been unusually severe, when suddenly Mrs. S. became exsanguinated, and syncope ensued, which lasted about twenty minutes. On recovering consciousness she felt chilly and restless, with constant nausea and vomiting.

At Dr. Janeway's suggestion, on the evening of the 19th inst. I was sent for by Dr. Agan, the family physician. As I have stated, I found the patient excessively anæmic; vomiting was constant; pulse was 140; the abdominal pains had ceased. On vaginal examination, the uterus was found to be pressed somewhat to the left. To the sides and posterior to the uterus irregular masses of a soft consistency could be felt, which obscured the palpation of the uterine appendages.

The diagnosis was ruptured tubal pregnancy with intraperitoneal hæmorrhage, a diagnosis which was further confirmed by the expulsion of a decidual membrane on the 20th inst. Laparotomy was recommended, and the next day, in spite of the patient's feeble condition, she was conveyed by ambulance to St. Vincent's Hospital. She arrived in a state of prostration, which seemed to afford little hope of a rally. During the night Dr. Mitchell, the house physician, watched at her bedside and administered hourly an ounce of whisky and five drops of tincture of digitalis every two hours. By eight in the morning the patient's condition had greatly improved. Her pulse had fallen to 100 and possessed more volume.

At 10 A. M. the patient was carried to the operating-room. Operation was performed under ether with the usual antiseptic precautions. When the peritonæum was incised a stream of dark fluid blood, probably not less than two quarts in quantity, gushed out. On introducing the hand, I found the pelvic cavity filled with clots, which were carefully removed. The tube on the left side was enlarged near the fimbriated extremity. On lifting it out of the abdomen the hæmorrhage was seen to proceed from a sac in the broad ligament, which had ruptured into the peritoneal cavity. A strong silk ligature (Staffordshire knot) was made to include the tube, sac, and ovary on the left side. The ligatured mass was removed by the thermo-cautery, and the pedicle dropped. The right tube and ovary appeared perfectly healthy. The abdominal cavity was then irrigated with Thiersch's solution, was rapidly sponged, and a large

drainage tube was introduced. The usual antiseptic dressings were employed. The operation lasted about forty-five minutes. By noon the patient had rallied and expressed herself as feeling perfectly comfortable. In the afternoon, while vomiting, so large an amount of bloody fluid was forced from the drainage tube that at first it was feared a fresh bleeding had taken place. It was noticed, however, that, as regarded her general condition, the patient was progressively improving; so it was decided to await events in place of reopening the abdomen. The next morning the quantity of fluid removed from the tube at each change of dressings had fallen to a drachm or two, and was more serous in character. However, it was four days before all color had disappeared and the tube was finally removed.

It is to be assumed that the bloody discharge was due to imperfect siphoning of fluid from the abdomen after irrigation, and not to an after-hæmorrhage. The sudden expulsion of the retained fluid during the act of vomiting was, I believe, a lucky accident, which contributed to smooth the path of convalescence.

In the afternoon of the first and in that of the second day the temperature rose to 101° F., with a pulse of 116; with these exceptions, the temperature remained below 100°. The pulse for a few days at times was in the neighborhood of 100 (generally less). At the end of the week it possessed about the normal frequency.

At 2.30 P. M. of the day of operation a teaspoonful of strong tea was given to the patient by mouth every ten minutes, and one quarter of a teaspoonful of brandy every twenty minutes. By rectum, brandy \mathfrak{z} j, tr. opii gt. xv, aq. \mathfrak{z} ij, was given every four hours. (The patient had no pain. The opium was given solely on account of the cerebral anæmia, and was discontinued at the end of twenty-four hours.)

After the effects of the ether wore off all vomiting ceased. The patient was thirsty and took carbonated waters freely by the mouth. On the third day she took two ounces of brandy and two ounces of milk every two hours in addition to the rectal enemata. On the fourth day toast, boiled rice, eggs, coffee, and tea were given, and were eaten with relish. Convalescence was uninterrupted. The patient slept well; all the natural functions were normally performed, and she rapidly regained color. On December 4th the patient was permitted to sit up in a chair. On December 17th the external wound and the sinus resulting from the tube had entirely healed, and the patient returned to her home. A month later she was able to go to a ball and dance all the evening with enjoyment. Her health since the operation has been better than at any time previous in her life.

The illustration herewith presented represents a longitudinal section through the specimen after it had been subjected to a hardening process by Dr. Dunham, of the Carnegie Laboratory. A certain amount of shrinkage has taken place, so that the specimen is perhaps not more than three fourths its original size. The embryo corresponds to about the sixth week. A clot surrounds the walls of the ovum, and above has so far thinned the tubal walls that it appears to be covered by peritonæum only. Rupture, however, had taken place below. At first a hæmatoma had formed between the folds of the broad ligament. The distension caused by the effused blood had converted the posterior layer at the point of pressure into a sac in which at the

* Read before the New York State Medical Association, September 25, 1889.

time of operation an opening was found of about the size of a man's thumb. The clots in this sac were much softer than that which surrounded the ovum.

stated that she had menstruated last about six weeks previous, and had supposed herself pregnant. The undoubted occurrence of intraperitoneal hæmorrhage led to the strong suspicion of ruptured tubal pregnancy. There had been, however, no antecedent symptoms—*i. e.*, no colicky pains, no sero-sanguinolent discharge, no expulsion of decidua. The presence of clots in the pelvis obscured the palpation of the pelvic organs. Still Dr. Janeway and Dr. McSweeney and myself believed that we could recognize an enlargement of about the size of an egg in the course of the left tube.

On the morning of June 2d the patient was conveyed by ambulance to St. Vincent's hospital. Stimulants were freely administered. Laparotomy was performed in the afternoon. Unfortunately, no formal notes were taken at the time, but the history of the operation was a repetition of that of the case already given. The abdominal cavity contained a large amount of fluid blood, the pelvis was filled with clots, and the tube on the left side was found ruptured on its posterior surface above the folds of the broad ligament. The rupture was caused by an ovum which presumably had attained four weeks of development. Through the rent the villi were beautifully apparent.



FIG. 1.

If we attempt to follow the sequence of events in this case it would appear that hæmorrhage into the tube occurred first, and corresponded to the symptoms experienced on the 11th of November, when the patient suffered from cramps, faintness, and nausea. The thinning of the tubal walls was such that the non-occurrence of intraperitoneal rupture at that time was almost in the nature of a miracle. Possibly the timely formation of the clot served as a protection. If the rupture of the tube was coincident with the occurrence of the first hæmorrhage, the separation of the folds of the broad ligament and the formation of the pouch probably took place gradually. Until the 18th inst. the patient experienced cramp-like pains, but she kept her color and had no symptoms that made her feel apprehensive. The sudden anæmia and prolonged unconsciousness at that date marked the rupture of the sac and the pouring of the blood into the peritoneal cavity. Subsequently the feeble heart action and the formation of clots in the pelvis doubtless served as a temporary check to the bleeding from the opened vessels.

CASE II. Tubal Pregnancy; Rupture; Laparotomy; Death from Bright's Disease on the Eighth Day.—Mrs. K., aged thirty-six, had given birth to nine children at term, and had had two miscarriages. Her labors had all been easy ones. Her general health previous to the occurrence which was the cause of my first visit had been good. There was no history of constitutional trouble, nor had she been conscious in the past of any pelvic suffering. On the 31st of May, without warning, she was seized with a violent attack of pain, followed by blanching of the surface, and syncope which lasted for several hours. For a time Dr. McSweeney, the family physician, had little hope that restoration could be effected, but she finally rallied. The next day (June 1st) Dr. Janeway and myself were invited by Dr. McSweeney to see Mrs. K. with him in consultation. We found her extremely anæmic, with blanched lips, rapid, feeble pulse, and great prostration, but not suffering greatly from pain. She



FIG. 2.

The operation was unusually free from difficulty and lasted hardly more than a half-hour. The patient rallied well. In the evening her general condition was most promising, save in one respect—*viz.*, the water passed in the afternoon contained over fifty per cent. of albumin. During the succeeding days there was little or no fever (temperature rose to 103° F. for a brief period on the second day), there was no pain, the appetite was good, but the albuminuria persisted. Still, the general progress of the case was so favorable that recovery was regarded as cer-

tain. On Saturday (seventh day), however, the urine, which had previously ranged between eighteen and thirty ounces, began to diminish in quantity, and in a short time sank to a few drachms, which became solid on boiling. Death from uræmia occurred on the eighth day.

These two cases illustrate the ordinary history of tubal pregnancy. In both, without antecedent symptoms, at an early period of gestation rupture with hæmorrhage takes place; in the one instance the blood primarily making its way between the folds of the broad ligament, in the other pouring suddenly, without check, directly into the peritoneal cavity. They are simply additions to the long list already furnished by Mr. Lawson Tait upon which he has based his scheme of ectopic gestations.

In Mr. Tait's belief, all cases of extra-uterine pregnancy are *ab initio* of tubal origin. When the ovum develops in the free part of the tube, rupture, he holds, occurs at or before the fourteenth week. If rupture occurs at once into the abdominal cavity, death ensues from hæmorrhage, or later from suppuration of the sac and peritonitis; if rupture takes place in the lower portion of the tube between the folds of the broad ligament, the ovum may develop to full term; may die and be absorbed as an extraperitoneal hæmatocele; may suppurate and be discharged at or near the navel, or through the bladder, the vagina, or intestinal tract; may remain quiescent as a lithopædion; or may become an abdominal pregnancy by secondary rupture. In the tubo-uterine form death occurs from intraperitoneal rupture before the fifth month. Mr. Tait denies the possibility of a primary abdominal pregnancy. The ovarian form he regards as possible but not proved.

There is no question as to the utility of Mr. Tait's scheme. It is based upon his exceptional personal experience and has received substantial support from the observations of others. It has stimulated active inquiry, and has given proper direction to pathological study; but the subject of ectopic pregnancy is still too new to make it possible for any scheme to be regarded as a finality.

The most interesting outcome of Mr. Tait's work has been the change of view as regards the existence of primary abdominal pregnancy. An overhauling of museum specimens, long believed to establish this variety, has so far furnished very nearly negative results, and there is at present a very general agreement that the reported cases are at least open to grave suspicion. It is not *a priori* likely that an ovum immediately after fecundation is capable of forming nutrient connections with the peritonæum. It is not theory, however, but facts with which we are called upon to deal. The discovery of an ovum growing in the peritoneal cavity with the tubes and ovaries demonstrably intact would suffice to establish the abdominal variety. In the early months, before the anatomical conditions are obscured by secondary changes, there is no pretense that such proof has been obtained. In more advanced stages a good many cases of assumed abdominal pregnancy have been placed in evidence. These, so far as my investigations permit me to judge, are divisible into two classes:

1. Cases where the tubes are reported as intact, but in which there exists a direct communication between the tube

upon the affected side and the sac cavity. Thus, Treub, of Leipsic, recently reports the following instance:

Patient menstruated last about the middle of April, 1887; peritonitic pains, with symptoms of internal hæmorrhage, on the 12th of June. At the end of July the same symptoms occurred but were more violent. Ballottement was distinct by the end of September. Life was felt a week later. There were no fetal movements after November 24th. Septic symptoms developed, and laparotomy was performed January 22, 1888, when the patient was nearly moribund. Death ensued the following night.

At the autopsy the annexa on the right side were normal. The left tube measured ten centimetres and a half, which corresponded to the length of the right tube. It was pervious throughout its entire extent. The fimbriated outer end communicated with the sac. There was no apparent distension of the abdominal end of the tube. The sac of the ovum was adherent to the posterior surface of the uterus and of the broad ligament, to a few coils of intestines, to the sigmoid flexure, and to the rectum.

Abdominal pregnancy was assumed by Treub because the tube had its normal length and its natural direction, while the placenta was attached to the posterior sac wall, which contained no muscular elements, even in the vicinity of the tube; but it is much more natural to suppose that a fecundated ovum occupying the infundibulum ruptured the tube walls at an early period of its growth, and thence continued its development between the folds of the broad ligament. It will be remembered that there were unmistakable symptoms of internal hæmorrhage in June and in July. The length of the left tube does not affect the question, as Werth* furnishes cases of unmistakable intraligamentous development where the same feature was noted.

2. Cases where the tubes are reported as intact and not in communication with the sac. Few of these merit criticism. Lately, however, new interest has been excited as to the possibility of primary abdominal pregnancy by a case operated upon in 1879 by Professor Müller, † of Bern. Extra-uterine and intra-uterine pregnancy existed at the same time. At the eighth month spontaneous expulsion of the intra-uterine fœtus took place. The extra-uterine ovum was removed by laparotomy. Death ensued from hæmorrhage. The post-mortem investigation was conducted by Walker who, in a carefully prepared essay, concludes that the case was a typical one of abdominal pregnancy. The tubes and ovaries were in contact, but not adherent to the sac. The latter had started originally from the bottom of the *cul-de-sac* of Douglas, and only in the course of its subsequent development had reached the uterine appendages. The correctness of the author's deductions has not, however, passed unchallenged, most of the recent reviewers regarding the history as indicating a tubal origin.

* Werth, "Beiträge zur Anatomie und zur operativen Behandlung der Extrauterinschwangerschaft," 1887. *Vide* table A, containing sixteen cases of intraligamentous tubal pregnancy. In No. 9, Scott's case, the length of the tube was given at six inches; in No. 12, Dreesen's case, at fifteen centimetres; in No. 15, Martyn's case, the statement is made that the tube was enormously increased in length.

† *Vide* L. Bruhl, "Zur Casuistik der Extrauterinschwangerschaft," "Arch. f. Gynæc.," vol. xxx, p. 70, and Walker, "Der Bau der Eihäute bei graviditas abdominalis," Virchow's "Arch.," vol. cvii.

Schlectendahl* reports the discovery of an ovum near the spleen, containing a fœtus measuring fifteen centimetres in length, in a woman who had died from internal hæmorrhage. The sac was the size of a man's fist, and was surrounded by adherent intestines. The uterus and tubes appeared normal. The value of this case as evidence on behalf of abdominal pregnancy has been denied, but the facts related by Schlectendahl certainly call for explanation.

There is little question as to the occasional occurrence of ovarian pregnancy. The specimen discovered by Patenko † in the Pathologico-Anatomical Museum of St. Petersburg seems to answer all the requirements of a demonstration. The right ovary was of the size of a hen's egg, and contained a cyst with smooth walls filled with serum. In this he found a body of a yellow color, of the size of a hazel-nut, which contained cylindrical and flat bones. The most careful microscopical examination established the fact that the bones were those of a fœtus, and not merely the chance products of a dermoid cyst. The presence of corpora lutea and follicles in the walls of the envelope proved that the body was an ovary. The tube on the corresponding side was nowhere adherent to the sac. The abdominal extremity was closed, and there were no traces of fimbriæ. ‡

Paltauf* relates a case of extra-uterine pregnancy in which there was a sacculated condition of both tubes which communicated with a cyst of ovarian origin. The ovaries were closely united. By means of the ovarian cyst a complete communication was established between the two tubes. In the large central ovarian cyst a clot was found which contained an embryo corresponding in size to one of from forty-five to forty-eight days' development. The origin of the condition here met with is naturally a matter of speculation.

But these exceptional cases, however interesting, play an unimportant rôle in the history of ectopic pregnancy. It is the tubal form that, not only relatively to the others but actually, is of common occurrence. Its pathology, diagnosis, and treatment are among the pressing questions of the day.

The physiology of conception, so far as known, consists in the discharge of the ovum from the ovary through rupture of a Graafian follicle, its entrance into the Fallopian tube by the mediation of currents created by the ciliated epithelium of the fimbriæ, and its propulsion through the tube either by ciliated currents, by peristaltic movements of the tubal walls, or by both forces acting conjointly; while in the

uterine cavity the descent of the ovum is impeded by the upward current produced by the ciliated epithelium of the uterine mucosa. This latter force undoubtedly helps propel the spermatozoa in the direction of the fundus or the cornua. How far the spermatozoa are hindered from entering the tubes by the opposing current is a matter of uncertainty. That it does not necessarily prevent progression is shown by the fact that in certain animals the entire current is in an outward direction. Wyder,* moreover, reports a case of tubal pregnancy in which he found, in the uterine portion of the tube, ciliated epithelium everywhere present.

As exceptions to the ordinary mechanism, it is possible for an ovum to migrate from the ovary upon one side, cross the pelvis, and enter the tube upon the opposite side; or, possibly, in very rare instances, after entering the uterine cavity, to cross the fundus and find lodgment in the opposite dilated tube. †

In regard to the ætiology of tubal pregnancy, Mr. Tait is unquestionably right in insisting upon the importance of the various forms of chronic salpingitis. Owing to the associated loss of epithelium, the dilatation and other changes in the tube walls, the two active forces which propel the ovum through the tube—viz., ciliated movements and peristalsis—are weakened or destroyed, while free ingress is afforded to the spermatozoa. Or, again, the passage of the ovum may be interfered with by the secondary results of catarrhal inflammations—such as the production of mucous polypi, of adhesions, or of sac-like dilatations. Formerly great stress was laid upon the ætiological importance of flexions and constrictions resulting from old peritoneal adhesions and inflammatory bands. Curiously enough, in recent laparotomies for tubal rupture, this cause has not played an important part. It is not quite clear whether the peritonitis formerly observed so frequently at autopsies was not in most instances secondary. It is, moreover, possible that, as a class, in cases where antecedent peritonitis has existed as a cause, the hæmorrhages resulting from rupture, owing to the agglutination of intestines and pelvic organs, are circumscribed, and do not call for surgical measures of relief.

Recent observations have shown that there is a tendency for tubal pregnancy to recur. Thus Herrmann has reported a case where, in performing laparotomy for tubal rupture, he found the remains of an ovum in the other tube. Tait ‡ has reported one and Veit # three cases where, within a year or two after a first operation for tubal rupture, a second laparotomy was rendered necessary because of the occurrence of pregnancy in the tube of the opposite side.

Tubal pregnancy is associated with the formation of a uterine decidua which differs in no wise from the decidua of

* Schlectendahl, "Ein Fall von graviditas abdominalis," "Frauenarzt," 1887, No. 2.

† Patenko, "Casuistische Mittheilungen," "Arch. f. Gynaek.," vol. xiv, p. 156.

‡ Mr. Tait, in his recent work on "Ectopic Pregnancy," refers to a specimen described by Dr. Walter as one of primary ovarian pregnancy (sac had ruptured at fifth month, and fœtus had escaped into peritoneal cavity), which is now in the Dorpat Museum, and suggests a careful investigation as to its real character. At Werth's request this has since been made by Runge, with a complete confirmation of the significance given to it by Walter in his original publication. Werth, *loc. cit.*, p. 64.

Paltauf, "Arch. f. Gynäk.," vol. xxx, p. 456.

* Wyder, "Beiträge zur Lehre von der Extrauterinschwangerschaft," etc., "Arch. f. Gynaek.," vol. xxviii, p. 381.

† In a review by Schaeffer ("Arch. f. Gynäk.," vol. xvii, p. 13) the question of the internal migration of the ovum is once more placed in doubt. In addition to the inherent improbability of the occurrence, Schaeffer declares that in all the cases reported the evidence is open to criticism.

‡ Tait, "British Gynecological Journal," August, 1888, p. 178.

Veit, *Gesellsch. f. Geburtshülfe und Gynäk. zu Berlin*, May 10, 1889.

pregnancy, except that the distinction into three layers is less marked. The decidua of the tube containing the fecundated ovum possesses a cell layer alone, as the tubal mucosa contains few if any glands. There is no serotina, nor is there any maternal portion to the placenta. The club-shaped extremities of the villi are simply imbedded in the muscular walls. Concerning the decidua reflexa opinions are conflicting. Frommel and Winckel maintain its existence. None was discovered by Langhans and Leopold.

In the early months the development of the ovum leads to a spindle-shaped dilatation of the tube, associated with hypertrophy of the muscular walls due to increase in the length and thickness of the individual fibers. As regards the degree of hypertrophy, very great individual variations have been observed. Indeed, in the same sac a thickening at one point may be accompanied by an excessive degree of tenuity due to overdistension at another. Now, the ultimate fate of a tubal pregnancy is in large measure dependent upon these anatomical differences. Unquestionably, early rupture, such as occurred in my two cases, is the rule. Mr. Tait says: "Out of an enormous number of specimens which I have examined, I have entirely failed to satisfy myself that rupture has been delayed later than the twelfth week." It seems to me, however, carrying skepticism too far to refuse credence to the positive observations of others, made apparently with the utmost care and with full knowledge of possible sources of error, which seem to show that a tubal pregnancy may exceptionally reach advanced, or even the full term of pregnancy. At present it seems fair to assume that when the sac which surrounds the ovum is composed of muscular and connective-tissue fibers with an external peritoneal envelope, and directly communicates with the Fallopian tube, the sac walls are of tubal origin. Of course it is not possible to assert that no rupture has taken place in the course of development. It is only known positively that rupture occurring at the site of placental attachment gives rise to hæmorrhage fatal to the fœtus; and the same is true, with rare exceptions, where rupture occurs at any point of the peritoneal surface. That rupture has first occurred into the cavity of the broad ligament in all the cases which go on to the period of viability does not seem so absolutely certain. The anatomical appearances in some instances at least indicate that the exposure of the fœtal membranes here and there through the maternal sac results not so much from laceration as from the gradual separation of the muscular fibers due to excessive stretching.* In most of the cases in which the pregnancy reaches an advanced stage the development of the tube takes place principally between the folds of the broad ligament. The support furnished the tubal sac by the gradual unfolding of the ligament layers hinders rupture. More rarely pregnancy may go to the period of viability without encroaching upon the intra-ligamentous space. The tumor then rises above the pelvic brim, and is furnished with a species of pedicle consisting of the uterine end of the tube and of the broad ligament.

The first of the above, or the intra-ligamentous form, lies

close to the uterus, which it not infrequently crowds upward and forward. The uterine end of the tube varies greatly in length. The fimbriated extremity is unrecognizable. Usually no traces of the ovary are found. In the so-called pedicled form the uterus is crowded to one side or retroverted. The uterine end of the tube is usually long and thickened. The corresponding ovary has generally been discovered. In both cases the relations of the sac are often obscured by adhesions to adjacent viscera. In the second half of pregnancy rupture of the sac and the escape of the fœtus into the peritoneal cavity may occur without noticeable hæmorrhage or without interruption of pregnancy. As the pressure is removed by the escape of the amniotic fluid, the placental borders curl inward so as to furnish a cup-like space, while the membranes sink downward and cover the upper placental surface. The fœtus in these cases may occupy the abdominal cavity, or a sac may be formed by the agglutination of the adjacent viscera.

Werth has reported a case in which death of the embryo occurred in the second month, and was followed by hæmorrhage which poured through the abdominal end of the tube into the pelvic cavity and gave rise to intraperitoneal hæmatocœle. Similar observations have been made by Veit and Westermarck. This form Werth terms tubal abortion. In another case described by Wyder the fimbriated extremity of the tube was obliterated, and as a consequence the hæmorrhage following the separation of the ovum converted the ampulla of the tube into a blood cyst the size of the fist.*

In the interstitial form of pregnancy—*i. e.*, where the ovum develops in the uterine portion of the tube—the sac of the ovum forms a whole with the body of the uterus. Of twenty-six such cases collected by Hecker, all ruptured before the sixth month. Tait says that, "so far as known, interstitial pregnancy is uniformly fatal by primary intraperitoneal rupture before the fifth month." Schwarz,† however, reports a case belonging in this category in which the fœtus was expelled into the uterine cavity.

The patient was known to be pregnant. Repeated hæmorrhages indicated a threatened abortion. To avoid further dangers, the cervix was dilated with the view to empty the uterus. On examination with the finger, the uterine cavity was found empty, but at the uterine opening of the left tube was a piece of membrane which was removed. The next day the finger detected membrane at the same site, and beyond a hard body. The uterus began to contract energetically. On the fifth day a fœtus was passed by the vagina, the pains ceased, the tumor largely disappeared, and the patient made a good convalescence.

Martin removed a male fœtus 33 centimetres long (six months) from the left uterine cornu. The patient recovered. Duvelius, who examined the specimen, concluded that the ovum had partially grown into the tube and between the folds of the broad ligament. He thought that rupture did not occur owing to the number of the muscular elements in the sac wall.‡

* Werth, "Beiträge zur Anatomie, etc., der Extrauterinschwangerschaft," pp. 105, 106.

† Schwarz, "Wiener med. Blätter," 1886. In the abstract furnished by Grandin in the "American Journal of Obstetrics" (January, 1887, p. 101) the date of pregnancy is not given.

‡ Martin, "Ztschr. f. Geb. und Gynäk.," vol. xi, p. 416.

* *Vide* tables of Werth, "Beiträge zur Anatomie und zur operativen Behandlung der Extrauterinschwangerschaft."

The burning question at this moment connected with tubal pregnancy is that of early diagnosis. Dr. Hanks has recently stated his belief that a diagnosis can be made in ninety-five per cent. of the cases we are called upon to attend. Mr. Tait, on the other hand, thinks "he may be excused for maintaining a somewhat skeptical attitude concerning the correctness of the diagnosis of these gentlemen who speak of making a certain diagnosis before the period of rupture."

The problem seems simple enough. Given pregnancy, and having ascertained that the ovum is not in the uterus, the diagnosis is effected. But we all know that the subjective symptoms of pregnancy are deceptive, and that the pigmentation, the mammary and the utero-vaginal changes are not always so clearly defined in the first three months as to make it safe in every case to positively diagnose pregnancy in even the intra-uterine form. The advice to use the sound to demonstrate the vacuity of the uterus in suspected cases has been the cause of many needless abortions. Fortunately, the sound often does no other harm than to add to our sources of error. Twice within the year past gravid patients have been sent to me with the assurance that the repeated introduction of the sound had shown the empty condition of the womb. In one of them, after an anæsthetic was given, it was easy to determine the presence of the head of the child through the cervix at the internal os; in the other, I felt perplexed and asked the opinion of Dr. Thomas. He pronounced it an ordinary pregnancy, and the event has shown that he was correct. Twice within the year, to my knowledge, the abdomen has been opened in this city for supposed extra-uterine gestation, and only ordinary gravidity has been found.

In the main our dependence must be upon local symptoms and local changes. The former consist of the suspension of the menses, often followed, after a brief period, by a bloody discharge, of paroxysmal pains, and of the discharge of the decidua. But the latter is by no means of constant occurrence. Paroxysmal pains are frequent in other forms of tubal disease, and menstrual disturbances are common phenomena in uterine derangements. In my two cases, and in most of the forty-two reported by Mr. Tait, there was no call for a diagnosis until rupture had taken place. As a matter of fact, the occasion for diagnosis must be very exceptional in the large class in which rupture occurs primarily within the peritoneal cavity. In the intra-ligamentous form the case is somewhat different. Here the swelling to the side of the uterus is easily reached through the vagina. We have as distinctive signs a rapidly growing tumor, early fluctuation, and the presence of pulsating vessels over the site of the tumor. Bimanual examination under an anæsthetic, especially if the thumb be introduced into the vagina and two fingers into the rectum, makes it possible to determine that the tumor is independent of the uterus. I believe in such cases that the chances of error are slight. Of course the diagnosis is strengthened by the existence of concomitant symptoms. I do not understand Mr. Tait to deny the possibilities of a diagnosis under such conditions. He differs only in regarding all intra-ligamentous cases as secondary to tubal rupture. Not much dependence is to

be placed upon uterine changes in the early months. These sometimes correspond to those of ordinary utero-gestation, but in the instances I have related in this paper they were insignificant. Neither perceptible enlargement nor cervical softening indicated pregnancy.

After the third month it is not ordinarily difficult to determine the existence of the pregnant state. Ballottement is usually perceptible at an early date, and the fetal heart makes the diagnosis certain; but the greatest care needs to be exercised in the examination of the patient and in the formation of an opinion concerning the extra-uterine situation of the ovum. In a suspected case violence in the attempt to separate the tumor from the uterus may cause sac rupture. Grandin believes the absence of contractions when frictions are applied to the sac of an extra-uterine ovum should prove a most valuable aid to diagnosis. Küstner* curiously enough maintains that the existence of contractions in tubal pregnancy should distinguish them from other pelvic growths. Evidently here more clinical observations are called for. Mr. Tait cites as a misleading condition an abnormal thinness of the uterine walls. In my own experience, lateral flexion of the uterus often simulates ectopic gestation to a surprising degree. In these cases the fundus containing the ovum lies upon one side of the pelvis. The cervix is crowded to the opposite side. Between the two a deep sulcus is felt. If the patient is hysterical, these deranged relations are exaggerated by contraction of the abdominal muscles. No difficulty in detecting the error is experienced when the patient is completely anæsthetized. Cases of retroflexion of the gravid uterus with incarceration are likewise often difficult to distinguish from extra-uterine pregnancy.

The distinction by physical signs between the tubal, the ovarian, and the secondary abdominal form is scarcely practicable so long as trained anatomists fail to agree concerning them when the abdomen has been opened and the organs are exposed to view.

A review of the subject of diagnosis makes it apparent that many cases of ectopic pregnancy present no symptoms previous to rupture. In another class the existence of a suspicious tumor with few or none of the corroborative signs should lead to a waiting policy, or, when the symptoms are of a threatening character, to an explorative laparotomy. It is well, however, to remember that with reference to this latter procedure recent popular interest in abdominal surgery has a tendency to invest trifling anomalies occurring in gestation with a sinister importance. But there still remains a considerable class where the early diagnosis is scarcely doubtful—as, for instance, that of Hawley,† where the diagnosis made previous to rupture was confirmed by laparotomy.

Upon the fact that in favorable cases certainty of diagnosis is attainable in the early stages of ectopic pregnancy rests the entire argument as to the validity of the treatment by means of galvanism or the faradaic current.

In two cases which I have elsewhere offered in evidence

* Müller's "Handbuch der Geburtshilfe," vol. ii, part 2, p. 541.

† Hawley, "N. Y. Med. Jour.," June 16, 1888.

there were present the early signs of pregnancy, a rapidly growing tumor to the side of the uterus, pulsating vessels, paroxysmal pains, and in one case discharge of the decidua. In both instances the diagnosis was confirmed by Dr. Thomas, concerning whose cool judgment and great experience there can be no question. In both, the faradaic current was used—the positive pole externally, the negative pole through the vagina for five minutes, and then through the rectum for the same period. This treatment was employed twice daily. After a couple of days the tumor had become noticeably flaccid, and in a week had shrunk to a small size. I have seen both patients many times since. Neither have suffered inconvenience, though in each a body of the size of an English walnut may still be felt. One has since given birth to two children without trouble ensuing. These cases are typical, and many similar ones have been reported. The same treatment employed in the forms of tubal distension due to salpingitis has not, in my experience, proved of avail. The use of the galvanic or faradaic current does not call for special skill. The only arguments against the method, except that the results reported carry with them the evidences of ignorance and folly, are that it is likely to cause rupture and that the retained ovum is liable to excite suppuration. But these eventualities are so rare that they may be left, in case of need, to a subsequent laparotomy. It should be understood that the method under discussion is only available in the first three months, and that no one in this country, as is commonly assumed by foreign critics, advocates electro-puncture. Foreign critics state that the results we claim are impossible. But it is unscientific to condemn them without subjecting the method to experimental tests.

The argument in favor of the early use of galvanism does not in the slightest degree impair the value of laparotomy, which must always remain our most important therapeutical resource. Only seven years ago I wrote as follows:

“As, under careful management, rupture of the tube most often proves fatal, Kiwisch recommended in such cases to make an incision four or five inches in length through the abdominal wall along the *linea alba*. In order to be sure that internal hæmorrhage had really taken place, he advised, when the peritonæum was reached, to first make a small puncture, and to introduce a pipette into the abdominal cavity. If the presence of blood was detected, the peritonæum should then be laid open the length of the abdominal wound, and, after first tying the bleeding vessels, the sac should be removed and the peritonæum carefully cleansed. Strange to say, intelligent as these instructions seem, no one, in these days of abdominal surgery, has so far had the hardihood to carry them into execution. The reasons for this backwardness are probably to be found in the uncertainties of the diagnosis, the risk of finding the sac hopelessly matted to the adjacent viscera, the dislike for operating upon a dying woman, and the fact that a considerable number of spontaneous recoveries occur, either from the mummification of the fœtus or by the limitation of the sanguineous effusion and the production of a circumscribed hæmatocele.”

The glory of demonstrating the practicability of the surgical treatment of rupture belongs to Mr. Tait. The sentence I have quoted was hardly printed before he began that magnificent series of operations—according to recent

reports, forty-two cases with but two deaths—which is certainly one of the greatest surgical achievements of the last ten years. Many active workers are now following in his footsteps, and the future saving of life by the employment of laparotomy in this field will be to him an eternal monument of fame.

Laparotomy not only possesses the advantage of being the one measure for the treatment of cases where, as in rupture, death is the common alternative, but it enriches our resources in cases of impending danger. Unlike the employment of galvanism, it presupposes the equipment necessary for laparotomy, and the skill that comes from experience. It possesses this advantage—it leaves nothing to chance. All the possibilities are under the control of human intelligence. Except for the question of ethics, it is available before and after rupture. It can be resorted to for the extirpation of the sac after three months have passed, when galvanism is no longer available. But Mr. Tait maintains that we have no right of our own volition to sacrifice fœtal life. That depends. So long as the attempt to remove the fœtus after the period of viability was followed by a ghastly record of maternal deaths, it was necessary to recognize the limitations of our skill and seek to preserve the life of the greatest value.

Recent more hopeful experiences challenge us to a revision of older views. Thus, in addition to the memorable case of Jessop, which formerly stood alone in saving the life of both mother and child, we have now those of Martin,* Lazarewicz,† Olshausen,‡ Breisky,§ Braun von Fernwald,|| John Williams,^ and Eastman,◇ of Indiana, in which the child was alive at the time of operation. In this list Williams alone left the sac *in situ*. Of the others, Olshausen, Breisky, and Eastman removed the sac entire with the placenta. The others controlled hæmorrhage by means of ligatures, and brought a portion of the sac outside the abdominal wound.

These later results leave little reason to doubt that, when the anatomical conditions come to be properly realized, human invention will find means to control the dangers of the so-called primary operation for extra-uterine pregnancy, and it too will find its place in the domain of legitimate surgery.

Reunion of Cut-off Fingers.—Dr. Nikolai P. Engelhardt, of Smolensk, communicates (“Proceedings of the Smolensk Medical Society,” 1888) another instructive instance of complete reunion of a cut-off finger. A peasant hacked off with an axe the terminal and middle phalanges of his left forefinger, only a thin palmar cutaneous bridge, measuring not more than one quarter of an inch in breadth, remaining to connect the severed finger with the hand, even the tendons being cut across. Without any delay, the parts were readjusted and sewed together. The wound healed kindly. The injury, however, left, besides a lineal scar, immobility of the interphalangeal articulation and some induration about it.—*Medical and Surgical Reporter*.

* Martin, “Berliner klin. Woch.,” 1881, p. 775.

† Lazarewicz, *Repertoire universel des “Nouvelles arch. d’obstétrique et de gynécologie,”* July 23, 1886.

‡ Olshausen, *Berliner Gesellsch. für Geb. und Gynäk.*, Nov. 9, 1888.

§ Breisky, “*Wiener med. Presse*,” 1887, No. 48.

|| Braun von Fernwald, “*Sitzungsberichte*,” 1889, No. 5.

^ John Williams, “*Obst. Trans.*,” 1887, p. 482.

◇ Eastman, “*Am. Jour. of Obst.*,” Sept., 1888.

CÆSAREAN SECTION IN A CASE OF PRIMARY CARCINOMA OF THE VAGINA.

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THE recent improvements in the technique and the decrease in the mortality of the Cæsarean section have done much to deliver that time-honored and worthy operation from the obscure recesses of the *oubliette* to which it had been remanded by the greater number of obstetricians, but there is yet extant in the minds of many a deep-seated prejudice against its employment as an operation of election, rather than as a reliable method of granting a merciful euthanasia to an exhausted parturient. True, in times of rare and desperate extremity it was brought forth, furnished up so as to exhibit its brand "*dernier ressort*," and given an opportunity to earn a commutation of its sentence; but this was so hampered by suspicious distrust of the good faith of an attainted felon that its performance, while in a condition due to long inactivity and deficiency of lubricating material, usually led to reincarceration, with an extension of its original sentence. But the world moves, and there is now only a smoldering ash-heap where once was a blazing fire of prejudice. How much influence in the preservation of these half-consumed coals is due to the old fetich-worship of the peritonæum, which adds to its pagan decalogue the prohibition, "Thou shalt not commit abdominal section, nor enter into the peritoneal cavity"; or what may be the exact value as an obstructionist to surgical progress of the blood-stained record of the operation as done in the past—can not easily be determined. But, although it is not disputed that early and unhesitating resort to operation is a prominent factor in that which goes to make the same successful, the practice of waiting until success is well-nigh precluded by ill-judged delay is still followed by many. The sooner it becomes a well-understood and practically accepted principle that, in so far as Cæsarean section is concerned, procrastination will add sneak-thieving to its criminal specialty of temporal larceny and filch from both mother and child the best of their chances for recovery, the sooner will its equitable deserts be granted to the operation, its utility be determined, and the cranioclast be sent to molder where Cæsarean section had been made to vegetate in periodical trances.

The status of the present operation, as modified in scope and technique, is well known, and the consensus of opinion among progressive surgeons is only disturbed by the question of whether or no the uterus should be removed at the same time that witnesses the extraction of the child. This element of discord is not relevant to the subject of this paper, and will not be admitted to a place among more pertinent matters to be considered. But the list of recorded cases in which the improved operation has been performed is sadly in need of re-enforcements if it is to act as the army which is to fight the statistical battles of the procedure; and, although this recruit can not be regarded as an enthusiastic defender of the faith, the fact is in no wise a matter of voluntary choice on its part. The following history of

a case which not long since came under my observation is offered, not as a very valuable, but as a rather unique contribution, for it presents some interesting features and an opportunity for critical comment:

C. D., aged thirty-two, married for twelve years, having borne five children and having had two miscarriages, was sent to the New York Cancer Hospital by Dr. A. P. Dudley, and was admitted into that institution on the service of Dr. Cleveland (which was at the time under my charge) on June 27, 1888. She was then in the fifth month of utero-gestation, the catamenia having last appeared on January 20th. During the previous two months she had suffered from severe pain, referred to the vagina and the hypogastrium, and for the same period had noticed the existence of a very fœtid vaginal discharge. Her last pregnancy had resulted in abortion, not quite one year previous. She had had a feeling of malaise and of pain in the head and in the sacral region for three years, dating from her last labor. She had noticed the occurrence of quickening two weeks before, and had felt the movements of the fetus regularly since that time.

She was fairly well nourished and of not unhealthy appearance, though her facial expression and general demeanor bore her out in her statement that she felt very weak and nervous. Her pulse was feeble, very rapid, and of unsteady rhythm. All the external signs of pregnancy of about five months' duration were present, but neither movements nor heart-sounds of the fetus could be detected. Vaginal examination revealed the fact that the lower third of the canal was all but occluded by a soft, friable, cauliflower-like mass, sloughing in spots, from which proceeded a discharge of fœtid and characteristic odor, breaking down at the slightest manipulation, with free hæmorrhage, and the seat of extreme tenderness. The hard, infiltrated base of this growth involved the lower third of the posterior vaginal wall and the subjacent tissues almost to the rectal mucosa, the posterior border of the *ostium vaginae*, and apparently the deeper periproctal tissues. The vulva, the upper portion and anterior wall of the vagina, and the cervix were free from the diseased action, the tendency of which seemed to be to extend its limits downward rather than circumferentially. The softer portion of the tumor which obstructed the vaginal canal having been scraped away, the affected tissues of the recto-vaginal septum were found to be rigid and inelastic, while the extent of infiltration was so great that no hope of radical excision of the growth could be entertained. The mother was certainly past any chance of recovery, and therefore her interests were made subordinate to those of the child in the after-management of the case.

During the ensuing nine weeks the patient's condition became steadily worse. The cancerous cachexia, rapid emaciation, speedy recurrence and extension of the growth, progressive debility and cardiac weakness, all combined to render her condition by the latter part of August one of great exhaustion. Common humanity had demanded the free administration of morphine almost since her admission, for she could not endure the excessive pain. In the middle of July the curetting was repeated, and the discovery was made that the rectal mucosa was involved. Further interference was contra-indicated by the extreme weakness of the patient's condition.

The fœtal heart sounds and movements were recognized at about the middle of July, and all the indications pointed to the existence of a vigorous state of fœtal vitality until the last week in August, when a marked loss of power, both in movements and heart sounds, was apparent. The mother was in a most critical condition, her pulse ranging from 120 to 150 in rate, and showing such feeble and irregular cardiac action that sudden

heart failure seemed to threaten her life at any moment. The whole aspect presented by her case was as ill-omened a harbinger of impending death as would have been a prophetic vision of a Highland seer in which her form had been seen completely muffled in the folds of the fateful shroud. As sudden death of the mother almost certainly involved that of the child, which had reached a viable age—seven months and a half—I was not willing to run so great a risk as was apparently to be taken by delay, especially as the fœtus had manifested the signs of diminishing strength. Therefore, on August 28, 1888, with the kind assistance of Dr. Outerbridge, Dr. McCosh, and the gentlemen of the house staff, I removed by the Cæsarean section a male infant weighing four pounds and eight ounces, well developed for its age and seemingly vigorous. Chloroform anæsthesia was employed for the reason that albuminuria had been discovered in the patient. The incision in the uterine wall was closed with deep and superficial sutures, the former of silk and the latter a continuous fine gut suture including the peritoneal covering only. The uterus contracted firmly and the patient rallied well from the shock of the operation. But, as was expected, the sloughing mass in the vagina played its part of an infectious source of septic poison, and the case was terminated by death on the fourth day. An autopsy revealed the lesions ordinarily found in puerperal metro-peritonitis, but, although a large collection of pus was present between the anterior abdominal wall and that of the uterus, which was found to contain in its cavity and its sinuses a quantity of purulent matter, the incision had closed by primary union, and so completely that the aid of scissors was needed in reopening the uterine cavity through the line of the wound.

The child was placed in an improvised incubator, where it soon adapted itself to its altered environment, breathing well, and soon lifting up its voice in quite a strong appeal for protection of infant industries. I was totally unprepared, therefore, for the news that it had suddenly died, after a gasp or two, some four hours later. Dr. Broun, the house surgeon, informed me that there was a hard lump in its axilla, but he was unable to remove this for examination on account of the vigilant supervision of the father of the infant.

On reviewing the history, in the attempt to decide as to the exact amount of influence on the unsuccessful result exerted by the early resort to operation I can find but one argument, and that a most unstable one, against the practice which was followed. Of course the question refers to the child's life only, as the mother was doomed under any circumstances. Assuming that no valid objection can be made to the choice of the simplest and most rapid method of operation as preferable to laparo-clytrotomy or Porro's operation, the adverse argument can rest alone on the principle that, as every day of intra-uterine life is precious to the fœtus, interference should be postponed until the last moment.

But that this case was an evident exception to this rule will be easily demonstrated by taking into consideration the conditions with which I was confronted in making my decision, and which seemed to threaten the transfer of the case to another court, the jurisdiction of which admits of no appeal from its rulings, should I hesitate for any length of time. A mother in the last stage of exhaustion from the combined effects of cachexia, pain, cardiac weakness, morphinism, loss of blood, as well as probable sepsis, and exhibiting all the signs which portend a sudden and impending death; a viable fœtus, dependent on diseased, poison-

laden materials from that mother's system for its existence and growth, showing evidences of failing vital power, whose life was in the same danger as that which threatened the mother momentarily—if there is any confidence to be placed in indicative signs, such were the conditions of the problem; and whether it should be solved by action or by trusting to uncertain future possibilities, the welfare of the child being the only object to be gained, was the question to be answered.

I regarded the conditions under which the child was placed as so unfavorable to its adequate nutrition—if not, indeed, tending to the actual production of a dyscrasia or a morbid condition in the child, dependent, as it was, entirely on the pabulum to be derived from a diseased, degenerated, poison-contaminated source of supply which threatened to fail at any time—that its longer subjection to their influence would be simply murderous extinction of its chances for ultimate survival. Moreover, that the malnutrition of its fœtal existence would, as a detrimental element, more than counterbalance the disadvantages of premature birth and artificial feeding, I was firmly convinced, even if the danger of its sudden death were not taken into consideration. The undesirable character of its intra-uterine surroundings may be indicated by the enlargement of its axillary gland, if it is admissible to draw the most natural inference as to the nature of that enlargement. Though the result can not be regarded as brilliant, the principle of early resort to operation—that is, before absolute emergency or prolonged efforts at labor have occurred—remains unshaken; nor must it be regarded in any other light than as upheld rather than decried by the facts in this history.

One or two points of interest are presented by the history. The primary union in the wound of the uterine wall under conditions most adverse to aseptic repair is additional evidence in support of the statement made by others that such action is not prevented by septic peritonitis, which is not a direct result of the operation itself. The unusual condition which called for operation in this case is also worthy of mention. Primary carcinoma of the vagina is considered a very rare condition by authorities, only twenty-eight cases having been collected from the whole literature prior to 1883.* I fancy, however, that this rarity of the condition is dependent more on paucity of reports than of cases observed, for I have seen four unquestionable cases during the past two years, and had met with several other instances of the condition before that time. But in the character of an imperative indication for Cæsarean section it is veritably a rarity, and, as no implication of uterine tissues in the malignant growth was discernible after death, the present case may be regarded as a clinical curio.

At the risk of appearing in the light of a hair-splitting theorist when I mention as a possible cause of the child's sudden death the effects of morphinism, acquired during its fœtal life from the mother, I venture to allude to such an explanation of the death from apnœa of even a seven-months baby, as it savors of some plausibility, but do not offer it as anything more than a possibility.

In forming a judgment as to the propriety of the course

* Hart and Barbour, "Manual of Gynecology," 1883.

pursued in the treatment of this case, it is necessary to take all the circumstances carefully into consideration as a whole. The case is, to borrow a simile from Oliver Wendell Holmes, "as unseizable, except in its totality, as a billiard-ball"; and, just as one is tentatively rolled over the table for the purpose of testing its freedom from asymmetry of form and irregularities of surface before it is put in play, this is now sent out to be tested and turned in the lathe of others' criticism, so that in any future contest its perfect action may only be invalidated by faulty execution or miscalculation on the part of the player.

18 EAST TWENTY-FOURTH STREET.

THE SURGICAL TREATMENT OF ERYSIPELAS IN CHILDREN.

By A. SEIBERT, M. D.,

PROFESSOR OF DISEASES OF CHILDREN, NEW YORK POLYCLINIC, AND
PHYSICIAN TO THE CHILDREN'S DEPARTMENT OF THE GERMAN DISPENSARY.

To open the inflamed skin in erysipelas by means of numerous small incisions made all over the diseased surface, and deep enough to draw blood, has been practiced for some time, and not without success, provided antiseptic lotions (five-per-cent. solutions of carbolic acid, or sublimate, 1 to 2,000) were frequently poured on the dressing. Hypodermatic injections of a two-per-cent. solution of carbolic acid into the healthy skin surrounding the inflamed part have also been in use with varying success. The object in both methods was to bring Fehleisen's coccus of erysipelas, wandering in and along the lymphatics, in direct contact with germicidal fluids. The idea was correct, but its execution deficient in both methods. The incisions in the inflamed cutis closed up too rapidly to admit sufficient antiseptic fluid into its lower layers, and the fluid, brought into the healthy skin bordering on the erysipelas by the hypodermatic needle, found its way too rapidly into the circulation, thus doing no good locally, but often harm constitutionally.

Kraske's method was the first step in the right direction. He made regular incisions on the border of the erysipelas, extending into the healthy skin, and, by crossing these diagonally with others, the incised surface (diseased and healthy) presented an appearance not unlike a rail fence. The object here was to give a good chance to the cocci to get to the surface, and the antiseptic fluid to get to the cocci in the lower layers of the skin, at the same time disinfecting the healthy ground most likely to be invaded next by these germs. To this end the dressing was constantly moistened for the next few days. The results of this method were excellent.

Riedel and Launstein (*"Deutsch. med. Woch.,"* March 14, 1889) proposed to improve Kraske's method by locating this fence of incisions entirely in the healthy tissue, about one or two inches away from the border of the erysipelas. This was to avoid possible infection of yet aseptic tissue, and this modification has given better results than any other method as yet practiced. The patients were usually put under an anæsthetic and the whole operation was performed strictly according to the rules of antiseptic surgery.

In three cases of genuine erysipelas in children I have been able to employ this method, and in each case with such success that I may be pardoned for relating them in detail:

Girl, five years old, in private practice. Child had an eruption (varicella); had scratched its legs, causing open sores, and in one of these on the left calf erysipelatous inflammation was set up, beginning with a severe chill and nausea, continuing with high temperature (104° to 105° F.) and other signs of severe illness, and spreading rapidly downward and upward. I saw the child eighteen hours after the chill, and, recognizing its cause immediately, proposed the Riedel-Kraske method. This was flatly refused, because of the anæsthetic. Next day I brought a new vaccination lancet with me, and proposed to make the bloody fence with the little harrow attached to it and without the anæsthetic. This was consented to. The erysipelas had meanwhile spread upward to about an inch above the knee and downward to the ankle joint. I decided to make a fence only around the thigh. After carefully cleansing the whole thigh with soap, water, ether, and a five-per-cent. solution of carbolic acid, and covering the erysipelatous region with a carbolized towel, I firmly grasped the leg, and with long strokes of the harrow managed to open the skin around the thigh to the width of about an inch, and about an inch and a half away from the erysipelas. The longitudinal scratches (which were all deep enough to draw blood) were carefully but quickly crossed diagonally with manifold strokes of the harrow, so as to be sure that all of the surface operated upon was opened. A solution of corrosive sublimate (1 to 2,000) was then rubbed into the wound, and a layer of absorbent cotton applied and fastened with gauze bandages. This dressing was moistened freely with the same solution every fifteen minutes.

The whole operation lasted no more than two minutes. The child's temperature at the time was 105° F., it had vomited all food for two days, and had been awake and delirious most of the previous night. The "fence" was made at 11 P. M. I did not see the child until the next day, when I found it sitting up in bed smiling, with a temperature of 100·5° in the rectum, due to the erysipelatous infiltration remaining in the limb below the "fence." The erysipelas had evidently reached the wounded ring, for on the lower border of the dressing the skin disappeared under it in a red and swollen condition, with a number of blisters spread over it, while on the other side it was as white and cool as could be, and it remained so until seven days later, when I removed the dressing. The temperature never rose again, the appetite returned, the child had slept well, and the subsiding of the severe symptoms had set in about six hours after the little operation.

But I found another patient on that day also sick with the same complaint. The younger sister of the first patient, a very nervous, somewhat anæmic child three years and a half of age, had been attacked the evening before with erysipelas of the right leg, beginning also at a scratch. As the parents consented immediately to the treatment, I was able to make the bloody ring just below the knee, and to thus stay the advance of the erysipelas in that direction. The temperature of the child fell from 104·5° to 101° F. within four hours, the erysipelas traveled down to the toe-nails, but never crossed our fence, the child meanwhile feeling perfectly well.

The third case was that of a baby but thirteen months old. I first saw the child at the children's department of the German Dispensary, on September 10th, when it was brought there for a severe attack of cholera infantum. As it was collapsed, I washed out its stomach. This had the effect of checking the vomiting and of virtually curing the case. But two days later erysipelas

began just above the knee, showing great tendency to spread rapidly upward, thus threatening the child's life. I resolved to operate the next day in spite of the child's weak condition. When I did make the fence the child's condition appeared almost hopeless, the temperature registering 105.5° F., and the strength of the baby being almost exhausted. As the inflammation had spread anteriorly nearly to Poupart's ligament, I had to make the ring just below it, coming up from behind half way over the buttock. The mother being a Bohemian and quite unable to understand me, I had to make myself intelligible more by signs than by words, and yet our combined efforts resulted in a complete success, for the next day the baby's temperature was normal and the child made a speedy recovery.

I had the satisfaction of being enabled to present the three children to my class at the New York Polyclinic, and there removed the dressings for the first time, showing exactly the line of demarkation and its remarkable action. I am positive that this method will check and cure every case of erysipelas if employed in time. My three cases demonstrate that my modification of operating with the vaccination-harrow and without an anæsthetic can be easily made use of in children, its advantage being that parents will more readily consent to this treatment.

122 EAST SEVENTEENTH STREET.

SOME GENERAL SUGGESTIONS IN DERMATOLOGICAL THERAPY.*

BY SAMUEL SHERWELL, M. D.,
BROOKLYN.

1. *A Simple Method of treating Scabies.*—The following plan is one I have long used, and for which I claim originality, certainly not as to the antiparasitic element itself, sulphur, which is as old as dermatology; but the manner of employment I have never seen referred to except by Greenough, of Boston, who casually refers to one of the means in a late monograph on the subject of scabies. I have employed and advocated the method as below given for many years, almost to the exclusion of others.

Instead, then, of the use of the odious and, as I believe, totally unnecessary inunctions with possibly rancid and certainly evil-smelling unguents, all that I find needed in my practice is to give a sufficiency of the dry precipitated sulphur to the patient, which I direct him to rub fairly well, but without violence, into the parts of the person where the lesions of the disease are manifest, or most manifest, once a day, preferably on retiring; to also sprinkle or dust a little, say about a small teaspoonful, of the same powder on the sheets or blankets, etc., of the bed—on the clothes, in fact, coming most intimately in contact with the individual. A simple bath of soap and water is ordered, with total change of under-clothing and bed-clothing about twice, at most three times, a week.

This plan seems to obviate all the discomfort, moral as well as physical, felt by the patient during his treatment, which makes him feel so like a leper under the ordinary, and certainly so under the more stringent, treatments, and I

am as certain of good result as in the latter ways. I maintain and believe that the sulphur by this method, with the increased sebaceous secretion of the stimulated skin, makes the best unguent, enough of the unguent, and certainly the least irritant unguent; and as such one far less liable to cause any of the violent eczemas which so often follow the use of the recommended and applied ointments, etc., of the authorities, especially the older ones.

A little spirit of lavender or any other mild perfume may be sprinkled on the linen, etc., to cover the slight sulphurous odor, which in such way is made barely perceptible and is in striking contrast to the pronounced diabolism of the ordinary method. If thought best, occasionally a mild inunction with some bland oil (such as sweet-almond oil) might precede the rubbing on of the sulphur; but I seldom or never find it necessary. Particularly do I recommend my method in cases where perhaps, as is natural, all the family are affected, though the disease is most manifest, as is usual, on only one or two of them. It can readily be perceived how easily all may be treated and yet hardly perceive it. Particularly do I lay stress in these cases upon the dusting of the bed-clothes.

It happens very commonly in my practice that the servant-girl fresh from Scotland, Scandinavia, or some other foreign country, brings it with her from the steerage, and becomes the focus of contamination. On one such set of causes and cases treated within the last fortnight I have now a letter from the family attendant. They were all cured without the slightest trouble. The disease had been present some months. I have treated in all eight cases during the past thirty days in the same manner with a perfect result and no trouble.

In all the foregoing, however, I do not seek to maintain that this mode would be so promptly and rapidly efficacious in those phenomenal cases we read of in literature as the Norway itch, etc., where, from the pachydermatous condition of the patients, a bath of caustic soda would seem to be a good preliminary to any treatment; my plan is adapted to the conditions under which we see the disease here—among families of perfectly, or at least relatively, cleanly habits and persons.

2. *Eczema Ani.*—I do not see in the works of skin authorities generally—when speaking of this exceedingly annoying affection and its accompanying distressing pruritus, both of which may have extended, and usually do, to the genital regions and parts surrounding—enough reference, or at any rate reference stringent enough, to what, in my opinion, is almost always a concomitant, and probably oftenest a cause—viz.: slight fissure of the mucous membrane of the sphincter, or oftener indeed inside the sphincter and well up the bowel.

In these latter cases generally I find the other name for fissure, "painful ulcer of the rectum," to be a misnomer, as it is often unattended with pain, or at least great pain. I scarcely ever now pretend to treat a marginate eczema of these localities without making a specular examination of the rectum first, and frequently find a lesion of this character, which, with its peculiar irritant secretions, both liquid and gaseous, renders it difficult, if not impossible, for a cure

* Read before the American Dermatological Association at its thirteenth annual meeting.

to be obtained by external applications alone, or even by slightly deeper excursions beyond the vermilion edge.

Every one knows how a fissure should be treated; but a good many patients, feeling no pain, can not understand the necessity for a surgical operation or procedure, and will not readily submit. In these cases I am in the habit of advising and instituting the use of rubber bougies—the hard variety (they are sold in nests like test-tubes)—and gradually increasing the caliber of the bougie introduced, letting them remain in some five to ten minutes every other night.

In several patients of late—one or two of whom (themselves professional brethren) had been treated before by celebrated specialists, and had been stretched, cut, and cauterized with nitrate of silver—I have found decided proctitis involving a large portion of the bowel; and it is for those cases peculiarly that there seems to be a reason for my speaking here, for their pruritus was something dreadful. It is this state of things that causes the evil secretions I have mentioned above, and a person may medicate the superficial surface of the anus and the adjacent region and, as aforesaid, the surface of the external sphincter for even some distance up, but no good, or very little, will result.

In these cases, after a laxative, preferably saline (I like Startin's tonic with a good deal of sulphate of magnesium), I think it important to have the bowel washed out with an ordinary slight enema, and then a sufficient quantity, say a tablespoonful or so, of the following or a similar mixture thrown up and allowed, if possible, to remain (this is best accomplished naturally at night):

R̄	Acidi borici,	}	.....āā	3 ss.;
	Zinci sulphocarbolat.,			
	Listerine,	}	.....āā	3 ij;
	Glycerin,			
	Aquæ.....			3 iij—5 iv.

In both the cases alluded to I varied this injection with self-insufflations of various powders—sulphur well triturated, boric acid triturated with carbonate of bismuth, etc.—taking care to vary the preparation often, as I find that the mucous membrane resists or resents, as the skin does, absolute uniformity or monotony of a healing agent. The result of this treatment with the bougies was entirely satisfactory, and speedy and welcome cure was attained. A word as to the method of self-insufflation. This was easily managed by one of the gentlemen, an excellent practitioner, by the following means: A long rubber tube (drainage-tube) was attached to a thick glass tube, loaded, and introduced as far as necessary into the bowel, and then by a quick puff emptied. Some mild antienemastic lotions and salves were also used externally, being changed occasionally for the same reason as the powders. In this way recovery became absolute, and, as one declared, freed him from what was making life itself a burden.

3. *Eczema and Syctotic Conditions of the Upper Lip.*—These conditions, too, are ordinarily dismissed with a slight and almost contemptuous reference to irritant discharges from the nasal chambers. I think they merit at least a half dozen lines in those treatises which pretend to be exhaustive, as they are very common, very distressing, and most rebellious unless handled properly; and, in my opinion, the nose and

its lining require as much attention as the lip. This interference may be either medical or surgical as the case may demand, but certainly the mere prescription of a salve or lotion does not cover the ground.

Having a very large auxiliary clinic attached to an eye and ear hospital, I am constantly meeting with strumous infants, children, and those of larger growth, with these forms of dermatitis; always improvement may be obtained by protective and soothing treatment externally, but to facilitate a cure and render it perfect, the nose must be the first object of treatment. In these cases I am inclined to think, as in some cases of eczema ani, that not alone the acrid liquid secretions, but the foul gases from the mucous membranes, act as decided irritant causes.

In all the foregoing recommendations I have purposely been as brief as possible. For instance, in the references made to anal, nose, and upper-lip troubles, many different therapeutical agents, both medical and surgical, may be used by different intelligent practitioners with equally good effect. However, I may perhaps add a closing word on the subject of scabies and its treatment as recommended.

I maintain, as before said, originality; also efficiency and convenience. I think, too, the means used might be recommended as prophylactic in circumstances where large bodies of men are gathered together, as in soldiers', lumberer's, and cow-boys' camps, in winter quarters, etc., for a long time.

I have never seen any dermatitic manifestations from sulphur used in this way with any degree of care. This is one of the most common complications or after-results of the "quick cures" of the itch. To be sure, my method is not so rapid as they are said to be, but is rather a nine-day than a three-day cure; but all other conditions are in its favor.

SEXUAL PRECOCITY.

By RICHARD DOUGLAS, M. D.,

NASHVILLE, TENN.

ABNORMALLY early puberty is quite compatible with good health, says Herriek, in the "Reference Hand-book of the Medical Sciences."

To the contrary, it appears that sexual precocity with its disturbing and demoralizing tendencies is in itself a pronounced disease, repugnant to our finer natures, and appealing most strongly to our sympathies. It robs childhood of its innocence, and youth of its beauty and purity. The one so cursed to "wallow in the carnalities of the world" is at last left a withered victim of premature senility.

If parents could interpret aright the many hints in the budding character which suggest sexual precocity in their children, training and watchful care might do much to correct the affliction they have transmitted. Under favorable surroundings and in ordinary temperaments, childhood merges into puberty and safely into adolescence, unconscious and innocent of all save the purest of feeling. That such a quiescent period is now fast becoming the exception, the forward youth of to-day fully attest. Yet it is most unusual for us to meet with a case so exaggerated as the one

I append. I can find but few in subjects of such tender age in the literature on the matter.

D. is four years and three months old, weighs fifty-four pounds, is three feet ten inches and a half high; the circumference of the head, just above the ears, is nineteen inches. The features are rather large and coarse. The general muscular system is remarkably developed. The penis, scrotum, and testes are of the size of those of an ordinary adult, the penis measuring full three inches in the flaccid state; the prepuce rests half retracted over the glans. The pubes is covered with soft, silky brown hair. The abdomen is quite protuberant.

This child, with such unusual physical development, is mentally sluggish, obstinate, and self-willed. He enters with spirit, however, into the amusements of children. He does not appear to manifest any fondness for the opposite sex, and yet is addicted to that curse, masturbation, which seems to come by intuition with the dawn of puberty. He will take advantage of every opportunity to commit self-abuse. His erections are vigorous. The emission which is sometimes found on his linen is of thin mucus; no spermatozoa are present.

The history of this rather unusual case is somewhat unique. The boy, now something over four years old, was not in any way peculiar or unlike other children up to three years of age, at which time, after wading in a spring branch for several hours, he was seized with a violent chill, followed by extremely high temperature and active delirium. A physician was called, and under his care the boy was quite well again in four days.

Some few weeks after this his mother observed the change in his voice. The gradual development of the sexual organs followed.

It was first known that he masturbated some six months ago. His father died of acute tuberculosis.

I shall not attempt an explanation of this curious perversion. A probable solution of the case is that during the short but severe fever his brain sustained some positive organic lesion which has since acted as an irritant to the sexual nerve centers.

A CASE OF PRECOCIOUS MENSTRUATION.

By A. J. JAGOE, M. D.,
HERNANDO, MISS.

ON August 14th a negro named Cobb called on me and stated that his daughter, not yet four years old, has been menstruating for over two years. She was born October, 1885, and in July, 1887, her mother noticed a discharge of mucus from the vagina. He took her to Dr. Westbrook, who prescribed, and in a few days the trouble was gone. Again came the discharge, and again the doctor "cured it," but the thing wouldn't stay cured, but kept returning, until my friend saw a periodicity in the attacks and cures, and informed its mother of the true state of the case. In a short time it became a regular menstrual discharge, normal as to time, quantity, and material. On my request the child was brought before our County Medical Society at its late meeting.

We found a well-grown negro child, very intelligent for her age, breasts fully developed, pubes wearing the adult garb, and the child actually menstruating. The parents are healthy, and forty-five and forty-three years old, respectively. The child is the *tenth* of their family, and there are two younger.

As none of us doctors here ever saw a case of the sort, and have read of but few, we send it for record.

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"THE OPEN DOOR OF QUACKERY."

UNDER this title Dr. Eggleston, Dr. Flint, and Dr. Doremus, in the October number of the "North American Review," discuss the regulation of medical practice. So important a subject should be carefully studied, and whatever remedies are suggested should be practical. In the first place, it must be remembered that the National Government can not act in the matter. Dr. Eggleston seems to think it can, under what he calls the "general-welfare clause" of the Constitution. If that is so, then under the same clause it might regulate the kind of seeds to be planted by farmers. Dr. Eggleston's remark that Congress once made a State out of a part of one previously existing, without the consent of the latter, and in violation of the Constitution, does not seem relevant to the subject. The "general-welfare clause" can not be interpreted to mean that Congress shall regulate the practice of medicine in the several States. Possibly "to protect an American industry" the National Government might be persuaded to forbid the entrance of doctors from foreign lands, or to charge a light duty upon them, or regulate inter-State medical requirements; but it can not lawfully forbid every State to graduate doctors in such manner as it may choose, and so make a fool of itself in this matter if it wishes.

In the second place, any effort to regulate medical practice must be so directed as to appeal to the people. They must be made to see that it is best for every one to prevent certain men from obtaining licenses. Our Government is representative in the widest sense. The Government "of the people, by the people, for the people" may be said to be of the average, by and for the average. Good, bad, and indifferent alike are represented. The active forces are the small number of good and the possibly rather larger number of bad men in the country. The great majority belong to the "indifferent" class who do not think much, except in the lines laid down by the good or the bad, and who rarely *act* save under the lead of these.

When seeking to bring about a reform in such a matter as the practice of medicine, it is most important to see just what can be done, not alone what ought to be done. The legislative measures suggested must be constitutional and practical, which can be passed by the legislatures and do good when passed. In the first place, the measures must not be proposed in Congress. In the second, they must be of such a nature that the selfish interests of the majority of the State legislature be not antagonized. Thirdly, if possible, they should appeal to these same selfish interests; and last, but not least, they should be so framed as to accomplish something really raising the standard of practice.

The first point needs no more discussion. In regard to the second, it is possible that a bill might pass the New York Legislature forbidding the chartering of more medical colleges having the power to grant licenses to practice until the population of the State reached, say, twice its present number, or for a certain number of years. Such a measure might somewhat diminish quackery. Possibly, also, a State board of examiners might be appointed. The bill suggested by Dr. Flint, while good in many ways, would be hard to pass, since it provides for an "unsectarian" board. Now, the law ought not to recognize separate "schools" of medicine, but it does. Moreover, most of the people do. Dr. Flint's "unsectarian" board would mean to many a board composed of narrow sectarians whom they would designate as "allopaths." The fact stated by Dr. Flint that "there is but one science of medicine" would seem absurd to a large number of people. They think there are three—"allopathic," "homœopathic," and "eclectic." With the American love of "fair play" and the American "don't-care-a-damniveness," the average legislator will see no reason why these three "schools" should not have a share in the examining board. The "County Democracy," "Tammany Hall," and "Irving Hall" are recognized as varieties of Democrats. Why are there not three kinds of doctors? Any way, the doctors don't count for much as voters, and it is hardly worth while for the ordinary politician to trouble himself about them; but if a bill is to be passed, he does not see why the "allopaths" should "have all the patronage." Moreover, a good deal of care will be taken by the homœopaths and eclectics and the various quacks that the legislator be clearly shown why the allopaths should not. They are "slow" and "narrow," these "old-school" men. Moreover, no more "monopolies" should be tolerated.

Suppose Dr. Flint's plan should pass the legislature, should we be better off? Of course, the plan would need more elaboration before being presented as a bill, for it is too vaguely worded, and leaves considerable doubt as to what is meant by several phrases; but it or any measure creating a board of examiners would help to sift out some of the worst quacks. Yet, an examining board would not cure the evil, for the reason that no examination can show a candidate's real knowledge or ability. Moreover, any such board, if not well paid, would not command the services of the best men, and, if well paid, would soon become the prey of politicians, medical and lay, who would rapidly destroy its efficiency. Still, a board would do something.

The most important thing, however, is to teach the people that their own interests demand good medical education. It takes long to do this, and it can only be done by again and again reiterating the idea. No law not supported by public opinion can be enforced. This opinion, on the whole, is right. To produce any real result the people must be shown again and again the folly of quackery until they begin to think about the matter. The moment public opinion is in favor of good doctors, it will cause laws to be passed which will check the present evils, and, moreover, will bring pressure to bear upon poor colleges, forcing them to improve.

We must not suggest violations of the Constitution. We must not hold up the idea of an examining board as a cure-all. Dr. Eggleston's statement of the countries in which national boards exist shows the absolute futility of such an idea, since we find Romania, Guatemala, Syria, Turkey, and Egypt among them. While many good doctors may be found in these countries, it will hardly be maintained that the average equal our own, or that our worst are as low as theirs.

It is doubtful whether, on the whole, the public can not take care of its own interests in this matter without the help of special laws. As a rule, the public is pretty shrewd. Whether we wish to pass a law or not, by all means let us explain to the people our own position, and show them what we believe to be best. If we are to have any improvement, it will be by our own efforts. Let us remember, however, that we live in a practical age among a very practical people, and we must not begin by proposing measures which can only be adopted if we accept the liberal ideas implied by the New York assemblyman when he asked, "What is a little thing like the Constitution among friends?"

CORONILLA, A NEW CARDIAC REMEDY.

A RECENT number of the "Therapeutic Gazette" gives some interesting facts and deductions in regard to coronilla, lately brought forward as a drug having a special action on the heart.

The *Coronilla scorpioides*, from which the drug is obtained, is an annual plant widely distributed throughout southern France, of the family *Papilionaceæ*, suborder *Coronillæ*. From experiments on animals, Cardot has determined that coronilla arrests the heart in systole. He cites four cases in which its use produced considerable amelioration in various cardiac affections. Recently Schlagdenhauffen, Gley, Reeb, and Spillmann have called attention to the drug. A glucoside has been isolated, termed coronillin, of which the toxic dose for a man weighing a hundred and twenty pounds would be about three quarters of a grain. At the same time Schlagdenhauffen and Reeb maintain that as much as two or three grains of coronillin must be administered to produce any therapeutic effect, or from nine to twenty-two grains of the extract.

Coronilla is said to act especially on the muscular tissue of the heart, increasing its contractility. In seventeen cases of heart disease Spillmann employed it during the asystolic period. In eight of these the remedy gave satisfactory results, while in seven it proved entirely inoperative. A diuretic effect was frequently observed, the daily amount of urine increasing from seven ounces to from two to four quarts. The therapeutic effect of coronilla, administered for three or four days in succession, became apparent in twenty-four or thirty-six hours after the ingestion of the first dose. The drug acts but feebly on the frequency and rhythm of the cardiac pulsations, but it is said to produce an increase in the amplitude of the pulse, an augmentation of diuresis, diminution of œdema, and improvement in respiration. The good effects of coronilla seem to be of the most transient character. In a day after the cessation of its use the patient returns to his previous condition. Thus the

value of coronilla is highly problematical, one author maintaining that three quarters of a grain of coronillin are a toxic dose, and another recommending from three to five grains. Further experiments are essential to test coronilla satisfactorily.

MINOR PARAGRAPHS.

THE SUBCUTANEOUS USE OF ANTIPYRINE IN SCIATICA.

DR. OSHEROVSKY, in the "Proceedings of the Caucasian Medical Society" for 1888, reports upon the treatment of himself and three others, for sciatica, by the subcutaneous injection of a solution of antipyrine, with a small addition of hydrochloride of cocaine. He gave one injection daily of the solution, so that the patient received from six to eight grains of the former and an eighth of a grain of the latter. In his own case three such doses effected a cure. Of the other persons affected, one obtained relief only after three injections, but with two more recovery was accomplished. In another case there was double neuralgia of the thigh, for which he administered seven injections on the right and five on the left side. The remaining patient of his series, who had had left-sided sciatica for two years, obtained temporary relief only from the injections; it became necessary to supplement the treatment with a month's course of faradization, whereupon recovery was effected. Dr. Oshеровsky prefers the subcutaneous use of antipyrine, thinking that only palliative effects follow its internal administration. He holds that a speedier result is thus secured, and by smaller and less frequent doses. He has found no unpleasant accessory results—such as nausea, giddiness, or excitement—from this method of treatment, according to his own experience or in the reported observations of others.

FAULTY TITLES TO ARTICLES.

It is a fault in those who write for the journals, medical as well as others, to adopt unmeaning headings to articles and paragraphs that have purpose and point. Dr. Billings has more than once shown how difficult it is for those who have indexing work to do to properly handle papers and articles which are indefinitely described by their heading. Nearly every medical man who has had research and collation to do, has found himself hampered by the apparently pointless head-lines of many writings. Of course, a pointless paper must have a meaningless title, but this sort does not commonly find its way into print. What assistance is there to the studious person who finds in the index of a periodical expressions like these, "An Interesting Case," or "A New Plan of Treatment," or "A Step in Advance," or "An Ethical Question," or a thousand others we have met with from time to time, but which we refrain from approaching too closely lest the teachings of this article be taken to have a personal bearing, which they assuredly have not?

THE MEDICAL SCHOOLS OF PHILADELPHIA.

THE "Medical News" states that the colleges of that city are increasing their facilities greatly this year. The Polyclinic has a contract under way for the construction of a new college, hospital, and dispensary building, the corner-stone of which will be laid early in November. The University Medical Department has a new Maternity, with a capacity for fifteen confinements each month. This is the one completed wing of the hospital that will not be carried out, in the entirety of its plans, for a year or two. The Jefferson Medical College will soon add another building to the cluster located at Tenth and Sansom Streets; a portion of the new structure will be for hospital en-

largement. A new autopsy building is now going up near the University Hospital for the use of that institution. It contains a theatre, modeled after that at the Johns Hopkins Hospital, for necroscopic demonstrations. These structures will be rather ornate in exterior and replete with every modern improvement within.

QUACK MEDICINES IN AUSTRIA.

ACCORDING to the "Occidental Medical Times," the police of Vienna have seized the entire stock of "Warner's Safe Cure," held by the pharmacists of that city. This was done not so much because of the character of the compound as because of the charlatanic advertisements which accompanied the nostrum. The agents for its sale had complied with the Austrian law, which directs that the formula of its composition shall be made known in regard to every proprietary medicine before it can be put on sale in the pharmacies. The "Pharmaceutische Post" is quoted as saying that the fault really lay in the quackish pretensions that were published in relation to the compound. Very severe rulings and examples have recently been made against certain preparations on that account.

PHENACETIN IN WHOOPING-COUGH.

NOT long ago we alluded to some favorable experience in the use of phenacetin in whooping-cough that had been recorded in a Munich periodical. From a recent issue of the "Archives of Pædiatrics" a confirmatory opinion, by Dr. George C. Irwin, of Sebetha, Kansas, may be cited, showing that the drug has proved beneficial in very young infants having pertussis. A child only three months old, with whooping-cough marked by severe hourly spasmodic attacks, got well under half-grain doses of phenacetin, dissolved in ten drops of glycerin. The relief was noticed from the onset of the administration, for on the first night after using it, a few times, at four-hour intervals the child obtained over six hours of good rest. In this case antipyrine, as well as other drugs, had been used without avail.

FALLING FROM A HEIGHT.

IN reference to an annotation in the "Lancet" upon this subject, a medical man, formerly a sailor, states that in youth he fell from the topgallant yard of a vessel, a distance of at least 120 feet. Sensation was entirely lost during his transit through the air. It returned slightly on striking the water, sufficiently to enable the lad to strike out (being a good swimmer) and seize a life-buoy. The writer thinks death would have been painless had he fallen on some hard substance; but the assertion that persons die in the act of falling is, he thinks, evidently wrong.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 15, 1889:

DISEASES.	Week ending Oct. 8.		Week ending Oct. 15.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	69	11	77	13
Scarlet fever.....	33	6	40	3
Cerebro-spinal meningitis....	0	0	1	0
Measles.....	18	1	12	1
Diphtheria.....	67	19	64	20

An Impostor.—Members of the profession in the city and State are warned against a plausible stranger, who professes to be a secretary of the "Association of Commercial Travelers,"

and desires to secure the services of a physician to attend members of the association. He shows a thorough familiarity with the "Medical Register," and gives unexceptionable references, on the strength of which he solicits a small advance for the purchase of blank forms. He has already been quite active in this city and may seek other victims.

The Chicago Medical Library Association held its first regular meeting on the 4th instant, and Dr. N. S. Davis was elected to its presidency. We wish the movement great success. Nothing short of a large collection of books in a fire-proof domicile will satisfy our ideal of what Chicago should possess.

Electricity in Extra-uterine Pregnancy.—Dr. A. H. Buckmaster read a paper, on October 11th, before the Kings County Medical Association, on the many methods of applying electricity to the ectopic foetus. The subject is still under study by Dr. Buckmaster, and his results will be given to the association at a future meeting.

The American Academy of Medicine is endeavoring to make as complete a list as possible of the alumni of literary colleges, in the United States and Canada, who have received the degree of M. D. All recipients of both degrees, literary and medical, are requested to forward their names at once to Dr. R. J. Dunglison, Secretary, No. 814 North Sixteenth Street, Philadelphia.

The Medical Society of the State of New York.—The next annual meeting will be held in Albany, on the 4th, 5th, and 6th of February, 1890. The Business Committee consists of Dr. G. H. Fox, 18 East Thirty-first Street, New York; Dr. Henry Flood, of Elmira; and Dr. Herman Bendell, of Albany. Persons intending to read papers at the meeting should make application to some member of the committee before January 1st, stating the title of the paper. The time required for the reading of a paper should not exceed fifteen minutes.

The New York Obstetrical Society.—At the annual meeting, held on the 15th inst., officers for the ensuing year were elected as follows: President, Dr. J. E. Janvrin; vice-presidents, Dr. H. C. Coe and Dr. R. A. Murray; recording secretary, Dr. A. M. Jacobus; corresponding secretary, Dr. A. H. Buckmaster; treasurer, Dr. J. L. Morrill; pathologist, Dr. J. R. Nilsen.

Changes of Address.—Dr. Edward G. Janeway, to No. 36 West Fortieth Street; Dr. J. G. Hiron, to No. 36 West Thirty-third Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from September 29 to October 12, 1889:*

POINDEXTER, JEFFERSON D., First Lieutenant and Assistant Surgeon. Granted leave of absence for one month. S. O. 113, Headquarters Department of Dakota, September 30, 1889.

ADAIR, GEORGE W., Captain and Assistant Surgeon. Leave of absence for one month granted in S. O. 90, Headquarters Department of the Platte, September 25, 1889.

POPE, BENJAMIN F., Major and Surgeon. Relieved from duty at Fort Clark, Texas, and will report for duty to commanding officer, Whipple Barracks, Arizona Territory. Par. 11, S. O. 230, A. G. O., October 3, 1889.

BILLINGS, JOHN S., Major and Surgeon. Detailed as delegate to represent the Medical Department of the Army at the annual meeting of the American Public Health Association to be held at Brooklyn, N. Y., October 22, 1889. Par. 10, S. O. 230, A. G. O., October 3, 1889.

TREMAINE, WILLIAM S., Major and Surgeon. Relieved from temporary duty at Fort Leavenworth, Kansas, and will re-

turn to his home, Buffalo, N. Y. Par. 13, S. O. 230, A. G. O., October 3, 1889.

KENDALL, WILLIAM P., First Lieutenant and Assistant Surgeon. Granted leave of absence for one month. S. O. 93, Department of the Platte, October 2, 1889.

STEINMETZ, WILLIAM R., Captain and Assistant Surgeon. Ordered for examination for promotion. Par. 3, S. O. 236, A. G. O., October 10, 1889.

CARTER, EDWARD C., Captain and Assistant Surgeon. Granted leave of absence for twenty days. Par. 6, S. O. 234, A. G. O., October 8, 1889.

SMITH, A. K., Lieutenant Colonel and Surgeon. Leave of absence extended twenty-one days, on S. C. D. Par. 7, S. O. 234, A. G. O., October 8, 1889.

MUNDAY, BENJAMIN, Captain and Assistant Surgeon. Granted four months' leave of absence. Par. 2, S. O. 233, A. G. O., October 7, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending October 12, 1889:*

HARMON, GEORGE E. II., Surgeon. Detached from the U. S. Steamer Constellation and ordered to the Naval Academy.

LOWNES, C. H. T., Assistant Surgeon. Detached from the U. S. Steamer Constellation and ordered to the Naval Academy.

WINSLOW, GEORGE F., Surgeon. Ordered to the Marine Rendezvous, Boston.

HENRY, CHARLES P., Assistant Surgeon. Ordered before the Retiring Board for examination.

BRIGHT, G. A., Surgeon. Detached from temporary duty at the Naval Academy and placed on waiting orders.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the six weeks ending October 5, 1889:*

FESSENDEN, C. S. D., Surgeon. Granted leave of absence for thirty days. October 3, 1889.

WYMAN, WALTER, Surgeon. Granted leave of absence for thirty days. September 3 and 21, 1889.

SAWTELLE, H. W., Surgeon. Granted leave of absence for seven days. September 26, 1889.

AUSTIN, H. W., Surgeon. Granted leave of absence for thirty days. September 9, 1889.

GASSAWAY, J. M., Surgeon. When relieved at New Orleans, La., to rejoin station at Cairo, Ill. September 30, 1889.

GOLDSBOROUGH, C. B., Surgeon. Leave of absence extended thirty days on surgeon's certificate of disability. September 16, 1889.

ARMSTRONG, S. T., Passed Assistant Surgeon. Relieved from duty at New York; ordered to command of Service at Cleveland, O. September 17, 1889.

AMES, R. P. M., Passed Assistant Surgeon. Assigned to duty at New Orleans, La., upon expiration of leave of absence. September 30, 1889.

WHITE, J. H., Passed Assistant Surgeon. Leave of absence extended thirty days on surgeon's certificate of disability. September 21, 1889.

NORMAN, SEATON, Assistant Surgeon. Granted leave of absence for thirty days, to take effect when relieved. October 4, 1889.

PETTUS, W. J., Assistant Surgeon. Ordered to Portland, Me., for temporary duty. September 26, 1889. Granted leave of absence for twenty-six days, to take effect when relieved. October 3, 1889.

KINYOUN, J. J., Assistant Surgeon. Granted leave of absence for thirty days. September 21, 1889.

Society Meetings for the Coming Week:

MONDAY, *October 21st*: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Medico-chirurgical Society of German Physicians; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, *October 22d*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society (private); Medical Society of the County of Putnam (quarterly), N. Y.

WEDNESDAY, *October 23d*: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medical Society of the County of Albany; Philadelphia County Medical Society.

THURSDAY, *October 24th*: New York Academy of Medicine (Section in Obstetrics and Diseases of Women and Children); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

FRIDAY, *October 25th*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *October 26th*: New York Medical and Surgical Society (private).

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 3, 1889.

The President, Dr. A. L. LOOMIS, in the Chair.

The Pathological Anatomy of Chorea.—Dr. C. L. DANA, in the course of an exhaustive paper on this subject, dealt especially with the pathological anatomy of the nervous centers in chorea. He said that the changes elsewhere, particularly those in the heart, had often been described, and there was a pretty definite agreement that the most uniform condition in patients dying of chorea or with chorea was fibrinous deposits on the valves of the heart, usually the mitral. Osler thought that this occurred in ninety per cent. of cases. He would not take up this particular point, but turn to the nervous side of the question and report a case in his own practice:

William G., single, Swiss, aged eighteen years, had come under his care December 15, 1888; family history unknown. Patient had always been weak and sickly as a child; had no remembrance of having had any of the ordinary children's diseases; gave no rheumatic, venereal, or alcoholic history. He had begun to have choreic movements twelve years ago; cause unknown. The movements had not been severe, and when at the age of twelve he had come to this country he had been able to work and be useful. The patient had suffered from so-called epileptic attacks at occasional intervals for many years. The attacks had at first occurred at night only, but of late had come on during the day also. They had begun with a shrill cry. The patient had to be examined physically in his bed, as he was unable to walk or help himself on account of the violence of the choreic movements. He was somewhat emaciated and anæmic, face dull, expression stupid, but answered questions

intelligently, though his speech was slow and jerky, on account of the movements of his lips and tongue. Over the left parietal bone there was a hole of about the size of a half-dollar made by a trephining operation performed in San Francisco fourteen months before his admittance to the hospital. No history of any form of paralysis. No heart murmurs. Lungs and abdominal viscera normal. Examination of urine negative. The epileptoid attacks at this time were of great violence and frequency and hysteroid in character. Chloral hydrate and stimulant feeding were ordered. On December 20th, five days later, hysterical attacks were less numerous, occurring only at night; chorea jerkings less, so that the patient could feed himself. On December 28th, thirteen days after admission, the attacks had ceased altogether; the chorea was better, the patient sat up, read, and talked, and continued to improve until January 6, 1889, when pneumonia developed, and he died January 8, 1889. The autopsy showed rigor mortis well marked; the body was considerably emaciated; the left lung was beginning to exhibit pneumonic changes. The heart was normal; no vegetations on the valves. The liver and spleen were normal. The kidneys were small, the capsules adherent and thickened. The skull was brachycephalic in shape and extremely thick, measuring seven eighths of an inch on section through the occipital bone. The old trephine hole lay over the left inframarginal gyrus. The dura mater was very adherent; the pia mater was thickened and congested, but not markedly adherent to the cortex. The brain looked normal, except for a very superficial softening seen on the under surface of both temporal lobes. The cord was apparently normal. The brain, the cord, and pieces of the sciatic and musculo-spiral nerves and of the biceps muscle were saved for further examination. The brain, cord, and nerves were placed in Müller's fluid, which was frequently changed, and at the end of three months for the cord, bulb, and nerves, and five months for the brain, they were placed in alcohol. Sections through the motor convolutions, corpus striatum, optic thalamus, pons, bulb, and cord were made. They were then cut and stained, Weigert's stains being used. The examination of the convolutions and subcortical white matter showed a slight amount of leptomeningitis; the gray matter was considerably injected; the neuroglia cells were not excessively increased. Pyramidal cells mostly normal; an occasional cell might be found undergoing pigmentary degeneration.

The chief changes to be noticed were just beneath the cortex; here the white matter was in some sections honey-combed with little spaces, round, oval, or like long slits. These spaces were either empty or partly filled by blood-vessels. The walls of the blood-vessels were somewhat thickened, though no real arteritis was present. They had, however, been tensely distended, and exudates, including red blood-cells, had been poured out; this had distended and eroded the circumvascular spaces, forming large dilatations similar to those described by Dickenson. The process, though chronic, could not be looked upon as inflammatory, and it could only be explained by assuming a flabbiness and loss of tonus of the vessel-walls due to prolonged distension, allowing abnormal dilatation and filtration of the vessel contents. There was no hyperplasia of connective tissue and there were no amyloid bodies. At the base and tip of the temporal lobe, where the surface was softened, a severer grade of meningitis was present, and the superficial layers of the cortex showed evidences of disintegration; the ganglion could be seen, but the white matter beneath was more extensively honey-combed, and there was evident increase of neuroglia cells. The basal ganglia and internal capsule did not appear to the naked eye so much involved as the subcortical tissue. The middle portions did not harden well, and only the optic thalamus, the lower part of the internal capsule, and the anterior part of the cau-

date nucleus could be examined microscopically. These parts showed the same honey-combed appearance, though less marked than in sections higher up. There could also be seen the small arterioles which had formed varicose dilatations, which were full of blood. The internal capsule showed more serious disorganization; its fibers were split up by interlacing and dilated blood-vessels, whose walls were thin, degenerated, and ready to drop to pieces. Varicosities of the nerve fibers, such as had been described by Berkley, were found. The corpora quadrigemina were dotted and streaked with dilated capillaries, but showed no large circumvascular spaces. In the crura cerebri, at the level of the third nerve, there was a lesser degree of vascularity than at higher levels; the cells of the nucleus were normal, as also was the descending part of the fifth nerve. In the pons the nucleus and nerves of the fourth pair contained few cells, and some of these seemed to be degenerated. The cells of the motor nucleus of the fifth nerve were normal; their blood-vessels were numerous and dilated, and their walls thicker than those seen in the brain. In the upper medulla a neuro-fibroma of the size of a pea was seen just at the exit of the acoustic nerve on the left side, the fibers of the nerve passing around and through it. The only nerve nuclei in which signs of degeneration could be detected were those of the vagus, including the anterior nucleus and accessorius. The gray matter of the floor of the fourth ventricle was much honey-combed with cavities made by dilated arteries. In the pyramidal tracts there was apparent increase of connective tissue. The neuro-fibroma referred to had not destroyed any parts by pressure. The pia mater of the cord was thickened, somewhat adherent, and filled with distended vessels. In the lateral columns of the cord the vessels were most numerous, but there was none of the honey-combed appearance that was found in the brain and pons. The anterior and posterior roots showed no degenerated fibers. No degenerative or inflammatory changes were found in the sections of other nerves.

Summary.—In the brain, chronic leptomeningitis, non-adhesive, and therefore not severe. Diffuse and varicose dilatation of the small arteries, especially of the deeper subcortical matter and capsule. Degenerative changes in the arterial walls; no arteritis. Circumvascular lymph spaces greatly dilated. Cortical cells in most regions normal. The severest changes—vascular, interstitial, and degenerative—were in the lower surface of the temporal lobes, in the internal capsule and adjacent parts of the corpus striatum, especially the lenticular nucleus, and optic thalamus, the antero-internal part. Varicose nerve fibers. Cell degeneration in some of the cranial nerve nuclei. Slight connective-tissue increase in the pyramidal tracts. In the spinal cord, slight leptomeningitis; congestion of the cord, especially in the lateral columns. Double central canal.

The speaker then reviewed the literature bearing upon his subject, and gave the results deduced from tabulated statistics of pathological findings collected from all available sources. In concluding his elaborate paper, he asked what inferences could be drawn from the pathology. There were at least two things which would determine chorea—the existence of an abnormal state of the blood and an intense cerebral hyperæmia in certain localities of the brain, and a neurotic history. Therefore should we not logically combine a humoral and a neuropathic theory in order to explain chorea? A neurotic child with a tendency to rheumatism or some allied self-intoxication received a fright or a fall. There supervened a vaso-motor paralysis of those motor tracts which in the child were so rapidly developing and so actively used, and therefore so sensitive to strains put upon them. The blood, if impoverished and rheumatically tainted, increased the irritation, and the vascular tonus was gradually

lost and a permanent hyperæmia of the parts would take place. Chorea might be called, therefore, a kind of *Schreck* or traumatic neurosis occurring in children with impoverished or rheumatic blood. He thought, also, that it might be maintained that chorea had an anatomical basis too well marked to be any longer considered simply as a functional disease.

Dr. M. ALLEN STARR thought that the collated facts were most valuable. He had been rather inclined to favor the infection theory in chorea, though he must admit that there were many objections to it. Still, we could not afford to throw it aside without very careful examination. Its acceptance would coincide with what had been said by the author of the paper, because it was well known that a neurotic person in a condition of bad blood would be more susceptible to infection by germs if such really lay at the base of chorea. There were three well-authenticated cases in which the investigators had discovered the existence of micro-organisms, and he thought that every case should be examined for the purpose of obtaining additional evidence. There was no reason why the vascular lesions referred to should not have had micro-organisms as a first cause. Then it was a difficult thing to determine whether the cases in which death occurred and those in which the patients survived were exactly the same in their pathology.

Dr. MARY PUTNAM JACOBI said that two more fatal cases had been reported by an English physician, coinciding with the remark Dr. Dana had made as to the predominance of fatal cases in England. In one of these, in which the autopsy had been recorded in detail, the lesions of the brain consisted largely of a diffused pink color throughout the nerve tissue, but this did not seem to be associated with congestion or dilatation of the vessels. This particular color had been described by a recent writer, and it agreed with Dr. Dana's idea as to the existence of an abnormal condition of the blood as a factor. In Hanford's case lesions had been found in the cervical, dorsal, and lumbar cord, consisting of thrombi of small vessels, foci of hæmorrhage, and vascular dilatations. The speaker said she thought that among the other reasons which might be urged against the exclusively infectious origin of the disease was its frequent origin in mental emotion and shock. It seemed impossible that bacteria lay in wait for such cases. Dr. Dana's case seemed to have implied a congenital imperfection of nerve centers.

Dr. W. R. BIRDSALL said he thought that Dr. Dana had certainly added facts to the pathological anatomy of chorea. While, however, he was willing to admit the importance of findings, still the question as to the interpretation of such findings was what we all sought to solve. Were these findings the cause or were they the result of deranged action in nerve centers? Similar lesions were found following a variety of nerve changes—such as epilepsy and other convulsive disorders. The inference, then, was that the findings were the result rather than the cause. A preconvulsive stage had been described, in which it was said there existed a slight disturbance of the nasal mucous membrane. There were other cases which seemed to favor the infection theory. The ocular muscles had been made responsible for a brief period and recognized as a chorea-producing factor in some instances. The majority of cases occurred in childhood, when the voluntary movements were not so well organized and slight disturbances once started might readily be followed by gross changes after a long period.

The PRESIDENT thought that any physician with the large experience of general practice must have noticed the close relation between chorea and infective diseases. That there was a condition in certain subjects—a nervous, hereditary, or acquired condition—which predisposed them to easy unbalancing of the nervous system, seemed to him evident. This occurred very largely in families of considerable neurotic history. But, in ad-

dition to this, it was largely associated with some cardiac phenomena or occurred as a sequel to some infection. He thought that two thirds of the cases of chorea were connected with a rheumatic history. Rheumatic symptoms did not always develop before the chorea, but they did afterward. Whenever he came across a case of chorea he examined the heart, convinced that he should find some lesion or irregularity in that region. He should be loath to regard the pathological lesions just recorded as the cause of chorea. They were seen in so many other diseases differing very little from the pathological records, which we found at one time, of diseases classed as functional. Unless the changes were constant and fixed, there was hardly enough to establish a pathology.

Dr. DANA, in reply, said he had not touched upon the microbe theory. He had been inclined to favor it when first advanced, and had only failed to enlarge upon it in his paper because it was so very far from being sufficiently demonstrated to afford a basis for any definite statements. He regretted that the president had not told them in what classes of disease the identical pathological changes alluded to occurred. He thought the findings of Sydenham pretty uniform, while those cited by Dr. Jaeobi were very much the same as already reported by Dickenson. Whether these changes were the cause of chorea depended upon what we understood by the term "cause." He did not suppose that the changes took place without some primary cause. He had not spoken of these pathological changes as the primary cause.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1889.

The President, Dr. I. E. GRAHAM, of Toronto, in the Chair.

The Prevention of Skin Diseases was the subject of the annual address by the PRESIDENT. The speaker made special reference to the form of prevention which the passing of sanitary laws made necessary. He instanced scabies as a disease in which much might be done to prevent contagion if proper and stringent laws were passed. He alluded to the fact that White, of Boston, in an address before the association several years ago, had urged the advisability of having the school-children examined at regular intervals in reference to this disease. A similar course might be followed with advantage in the case of children who were admitted to charitable institutions. Tinea tonsurans was mentioned as another disease whose spread might be much lessened were such examinations carefully carried out. The same truth held even more forcibly with reference to two other diseases—viz., syphilis and leprosy. The former disease numbered its innocent victims by thousands, and yet few well-directed attempts had been made to eradicate it. In those countries where laws had been enacted to such an end little had really been accomplished. Public sentiment had not been roused to the need of such action. Where attempts had been made to have periodical inspection and registration, the ends had been defeated by clandestine prostitution; and yet, if such registration were possible, we might reasonably suppose that the ravages of the disease would be lessened. At the present time it was unwise to advocate any legal measures, since the larger portion of the community was directly opposed to such a plan. The speaker would suggest two methods by which a partial control might be gained—viz., early diagnosis, and proper facilities for treating such patients in our large general hospitals. They should be received into special wards in hospitals rather than into special hospitals. They should be treated with the same consideration as all other patients, so that they might not hesi-

tate to apply for admission. It was often said that the public money should not be used in this way, but it should be considered that in allowing these patients to remain at large there was a still greater danger. A third way of preventing syphilis was by the careful examination of all wet-nurses. In Moscow, where such a system was enforced, 17 per cent. of the applicants for registration exhibited suspicious signs, and 4 per cent. were undoubtedly affected with syphilis. The regular examination of soldiers and sailors, together with care in regard to inoculation by vaccination or in circumcision, was alluded to as of interest in this connection.

The reader questioned whether there were not grounds for alarm at the present time in reference to the spread of leprosy in this country. What means of protection, if any, should be taken against it? There was no question about the contagiousness of the disease, as proved by its rapid spread in the Hawaiian Islands, by the inoculation of persons previously healthy, and by the fact that a *Bacillus lepræ* had been discovered. The germs had been introduced with food, and possibly also by inhalation. Formerly hereditary transmission was considered the only method; but probably it was the predisposition which was inherited. Cleanliness seemed to be a preventive, but in the most favored nations there were certain individuals who became affected. Thus far our own country was not greatly crowded in population, but on the Pacific coast the Chinese were recently becoming very extensively invaded. It would appear that if one leper was allowed to live in a crowded district, the disease was found to be spreading in a very few years. In this country it might perhaps spread insidiously, and be widely scattered before we were aware of it. In India there were said to be a quarter of a million of cases, and in this country it was reported to have increased fivefold within the last ten years. There were two methods of prophylaxis against leprosy—viz., the prevention of new cases coming in, and the isolation and care of those already here. All immigrants should be examined, and those with leprosy sent back to their homes. Doubtful ones should be placed under observation for two or three years at least. The only successful method of controlling the disease was by the segregation of the lepers and their complete separation. That such a step was difficult was shown by the history of the laws in New Brunswick. It was almost impossible to have the patients enter the hospital. When we considered that the disease was now found in the Canadian provinces, in the Southern States and in Mexico, in California, and also in the heart of the country, there seemed to be a good opportunity for its wider spread among us.

In closing his remarks, the president suggested that it was advisable to have the meetings of the association in the large centers of population, so that rare cases of disease might more commonly be seen and shown. He suggested the desirability of limiting the discussion of a single meeting to one or two topics. Allusion was made to the fact that during the past year the first Congress of French dermatologists had met in Paris, and the first meeting of a similar German Congress had been held in Prague, and it was predicted that we might expect abundant fruit in future years as the result of the labors in these organizations.

Clinical Notes on Herpes Zoster.—Dr. F. B. GRENOUGH, of Boston, read a paper thus entitled. It comprised statistics drawn from a series of 235 cases of the disease occurring during the past sixteen years at the Boston Dispensary, the total number of patients with skin diseases treated during that time being 17,741. The ratio was therefore a little less than 1.5 per cent.; 45 per cent. had been males. The most frequent age had been from ten to fifteen, which was a surprise to the author. It had been found that the greater proportion of cases had oc-

curred in the spring months, with very little variation in the separate years. The author considered as well proved the intimate connection between the disease and some involvement of the nervous system, as shown by the distribution of the eruption and the occurrence of the neuralgic pains. It was an interesting fact that more pain was felt in proportion as the age of the patient increased. In 17 cases without pain the average age had been nineteen years; in 13 cases of those who suffered pain the average had been twenty-eight years; and in 19 cases where the pain had been mentioned as severe the average age had been forty-four years. In each division, however, there had been individual instances of wide variation from the average.

Another very interesting inquiry related to the question whether the sensitive fibers only of the nerve were affected, or the motor nerves as well. Generally the zoster accompanied the superficial branches, which had no motor fibers. But the author had seen two cases of marked facial paralysis accompanying zoster of the face or head. Both patients had recovered perfectly though slowly. In the second case the herpes had appeared about the left ear, accompanied with marked pain in the ear. It would seem that the direct nervous connection was sufficient to account for the facial paralysis. In one case where the lesions had appeared to pass beyond the median line of the back there had been found to be a spinal curvature. In some cases there had appeared to be a very slight overstepping of the median line over the sternum. Sometimes there had been a hæmorrhagic tendency, but such cases had not appeared to be more severe, although they might have caused a little more discomfort. The size or angry appearance of the vesicles made no difference in regard to the amount of cicatrix which would follow. There were certain cases where it was very difficult to distinguish between the progenerital or the labial form of herpes and the true zoster. The reader did not think the eruption could be aborted or the disease shortened. Irritation should be avoided, and the vesicles should not be broken. A large diachylon plaster would sometimes be of benefit.

Dr. G. H. FOX, of New York, spoke of the ætiological value of violence in reference to the attacks of herpes. It had been his experience that in almost every case where the history was carefully obtained some injury could be discovered. The relationship was so intimate that he considered it one of cause and effect. In the way of treatment he had found nothing so good as the constant galvanic current. No remedies which he had given seemed to influence the disease, and he had found that many cases would come to a speedy termination without any treatment at all. Some years ago he had given *Rhus toxicodendron* in one case and the eruption had disappeared at once. In subsequent cases, however, the result had been far different. Two or three applications of the current might be sufficient to render the patient entirely comfortable until recovery took place.

Dr. A. R. ROBINSON, of New York, did not think the disease should be strictly classed as a neurosis. It seemed to him that it was an infectious disease, like pneumonia. It had a definite duration, and generally appeared but once in a lifetime. He did not believe that trauma would be a sufficient cause for it. The speaker had seen one case where both sides of the face were affected, occurring during the course of a croupous pneumonia.

Dr. J. ZEISLER, of Chicago, asked in reference to the production of the disease by arsenic. He had lately seen a case of Hodgkin's disease which had been treated with arsenic, where, after the tumors had nearly disappeared, a crop of herpes vesicles had come out in the gluteal and femoral region. The speaker instanced one case where there had been perfect anal-

gesia over one side of the face, and at the same time a prickling and burning sensation over the same portion of skin. Perhaps this would be a corroboration of the statement that sensitive fibers had different terminations in different points in the skin.

Dr. P. A. MORROW, of New York, asked if the hyperæsthesia and analgesia had been upon the same surface.

Dr. ZEISLER replied that they had been upon the same area although it was impossible to say that they were at the same exact point.

Dr. MORROW remarked that the temperature sense and pain sense were generally lost at the same time. The observation seemed to him a very interesting one.

Dr. E. B. BRONSON, of New York, said that to him there was an unsolved mystery about the ætiology of the affection. It seemed to occur with a regularity that was opposed to the idea of its infectious nature. There had been epidemics of the disease, and yet it did not seem to depend on the factors—such as season and temperature—which influenced other infectious diseases. The local character of the lesions also militated against the infectious origin. In diphtheria we could see how the poison reached the point where the effects were noticed, but in the case of zoster it was difficult to suppose that the germs could locate themselves in the nervous ganglia. The paralytic phenomena were not easily explained, especially in that form which affected the facial muscles; in the extremities the same result was more easily accounted for. The speaker had seen two of these cases, in one of which the different phenomena had been so closely connected in time that it had seemed as if the same cause had produced both of them. In one case he had thought there might have been an inflammation of the Gasserian ganglion, with extension of the inflammation through the plate of bone which separated it from the *intumescencia gangliiformis*, but perhaps it was more reasonable to suppose that it was reflex in its origin. The speaker had used successfully a solution of gutta percha in chloroform, finally sweeping over the part a wisp of absorbent cotton, a few fibers of which would cling to the surface. It seemed to him that under this mode of treatment the process was sometimes arrested.

Dr. S. SHERWELL, of Brooklyn, believed in the protective dressing, and thought that the continued current was capable of giving great relief. Some patients were of rheumatic tendency, and this should be looked out for.

Dr. W. A. HARDAWAY, of St. Louis, asked about the occurrence of chronic zoster, and related the history of a man of sixty years, who had exhibited an eruption of zoster on both sides of the neck. The speaker believed in galvanism, but was inclined to question whether the whole effect was due to electricity, or whether mental effect might not play some part. He instanced the case of a woman who had been given an application of the electrodes for the relief of a severe attack of supra-orbital neuralgia. The result had been a happy one, and the patient had gone away absolutely without pain; he had discovered afterward that he had neglected to immerse the element. The speaker had found nothing so good for the local treatment as a protective dressing in the shape of collodion. He objected to the use of greasy ointments, which macerated the vesicles, so that the tops were rubbed off, and sores were more apt to follow.

Dr. L. D. BULKLEY, of New York, remarked that the disease was seen in almost the same proportion in New York as in Boston, a trifle over one per cent., and remaining the same year after year. It seemed strange that there were so few cases where both sides were affected at the same time. He had seen zoster on the persons of those who had exhibited the scars of a previous attack. He did not believe the affection was a local manifestation of a general disease, but that it was reflex and of

traumatic origin. The reason why it so frequently appeared at the waist was because of the separation of the clothing in both men and women, and the consequent liability to the effects of cold. In one case of lymphoma of the neck there had come on an extensive zoster over the course of the nerves, passing through the growth. It had been a frequent experience with him that persons taking arsenic were affected with the disease. His treatment was to bandage the part as tightly as possible with a swathe on the inside of which a good amount of starch had been sprinkled, and have the whole sewed on. This was left on for a week, and gave great relief, without any other treatment.

Dr. H. G. KLOTZ, of New York, did not agree in the view that made the disease an infective process. Croupous pneumonia, which was an example of such diseases, was sometimes the result of trauma. In two cases of zoster that he had seen the lesions had become gangrenous. Both these patients had had syphilis, and in one of them the disease had been supposed to be a syphilitic ulcer.

Dr. ROBINSON did not mean to assert that an infectious process was necessary for the appearance of the eruption. He had seen a well-marked case of zoster where Pott's disease had been the starting-point of the irritation.

The PRESIDENT reported a fatal result in a case of zoster affecting one side of the face—the cheek and lower lid. On the fourth day the pain attacked the other side of the face, and on the fifth day the patient suddenly died. At the autopsy there was found a softened condition of certain parts of the brain. The Gasserian ganglion and a portion of the fifth nerve were found to be inflamed, and leptothrix threads, together with single bacteria, were found in some of the arterioles of the former structure.

Dr. GREENOUGH said that he had no data in reference to the effect of the ingestion of arsenic in the formation of zoster. He considered the coexistence of pain and paralysis as due to the intimate anastomosis between the nerves, although there might be a certain amount of reflex action.

(To be continued.)

NEW YORK STATE MEDICAL ASSOCIATION.

Sixth Annual Meeting, held in New York, September 25, 26, and 27, 1889.

The President, Dr. W. T. Lusk, of New York, in the Chair.

THE meeting being called to order and a number of business matters disposed of, the reading of papers was begun.

Inversion of the Uterus; Novel Treatment.—The writer, Dr. G. E. FELL, of Erie County, explained his method of irrigating with warm water, while employing manual pressure, for returning the inverted uterus, citing a case of partial inversion returned in five minutes. In answer to a question, he replied that the history of a previous labor in this case was that the forceps had been used and the uterus pulled bodily into the world, though of this he had known nothing until afterward.

The Latero-dorsal Posture in Gynæcological Irrigation.

—Dr. FELL also read a paper on this subject. The author made use of what was practically Sims's posture, bringing the buttocks of the patient over the edge of the table or bed.

Pelvic Cellulitis in Women.—Dr. W. H. ROBB, of Montgomery County, read a paper on this subject, in which he said that he had selected the term pelvic cellulitis because it conveyed more clearly the nature of the diseased tissue. The cellular tissue of the pelvis did not differ in anatomical structure from other cellular tissue. Much of the lower surface of the peritonæum came directly in contact with the cellular tissue of

the pelvis. No inflammation of any magnitude could well exist in one without affecting the other. The medical profession was divided as to the location and importance of pelvic cellulitis. Some thought the connective tissue of the pelvis never suffered from uncomplicated inflammation. Dr. Gill Wylie had said that if one excluded the diseased glands, tubes, and ovaries, there would be no mysterious inflammations. The author considered that pelvic cellulitis existed as a separate and distinct disease, though the pathology differed in no way from inflammatory processes in the areolar tissue in other parts of the body. The duration of the disease varied much. In one patient it would pass through its stages rapidly, and in another the stage of effusion would last for months or years. The causes of pelvic cellulitis were not infrequently the absorption of septic material. After giving a *résumé* of the symptoms, course, and duration of the disease upon the basis of its usual subdivision into three stages, he went on to indicate the line of treatment which he recommended. In the acute, or first stage, he employed veratrum viride. This he found reduced the pulse, lowered the temperature, and, he believed, would abort many attacks, if given at once and with regularity. If the attacks were following either labor or abortion, he would curette the uterus, then carefully wash out the organ with a one-to-twenty solution of carbolic acid, and introduce iodoform. The treatment of the third stage should be directed to supporting and stimulating the patient. After suppuration occurred, the pus should be removed. If the patient was not suffering from its retention, it was well to wait till it depended to the most favorable point where it could be removed by the use of the knife. The cavity should then be washed out. It was sometimes necessary to follow up tortuous sinuses and make a counter-opening.

Dr. H. O. MARCY, of Boston, said he must take views opposite to those of the author of the paper. After reviewing the physiological function of the connective areolar tissue of the pelvis, he said we had now reached a point when inflammatory processes were pretty well demonstrated as being traceable to some form of micrococcus or bacteria. The tubes, uterine, ovaries, or anything else might be originally involved, the infection finding its way from any of these. The consensus of opinions by the best authorities was that these pelvic inflammations were due to some form of micrococcus. We curetted the uterus. Why? To remove this cause. We introduced iodoform. Why? To destroy this factor, which the author of the paper admitted was present. This was simply following along the lines of modern surgery, which endeavored to arrest the progress of infection that came from without. He thought we were simply feeling about for a name to a disease which we ought to know more about.

Dr. E. M. MOORE, of Monroe County, said that he should like to advocate the use of the aspirator in this affection. It gave immediate relief. When we came to drainage we should be dealing with a small cavity instead of a large one. It was, in his opinion, vastly better to aspirate than to employ drainage. With reference to the pathology, Virchow had been disposed to confine it to this very connective tissue everywhere. That the morbid process could extend from operations on the cavity of the uterus had been the speaker's unpleasant experience.

Dr. E. D. FERGUSON, of Rensselaer County, said the operation of aspiration was so simple and so satisfactory that it had a large field of usefulness, but when we came to pelvic surgery it was essential that we should know what we were doing. In other words, by an incision carefully made, layer by layer, it was possible to recognize when we came to parts in the dissection which should be placed on one side and protected. Whether the aspirator or knife was used, he did not think there would be any different effect on the course of the disease, provided

care was taken to keep the cavity free from septic influences. In Dr. Moore's case something had probably been added to the cavity.

Dr. J. CRONYN, of Erie County, referred to subcutaneous injections of morphine as a curative agent as compared with crude opium. Morphine had never in his experience been able to take the place of opium. He advocated its administration with quinine, and, when so used, found that both cinchonism and narcotism were avoided.

Dr. ROBB, in reply, said that, so far as the aspirator was concerned, he had known it to be used where no pus existed, and its simple use not infrequently induced further inflammation. His own opinion would favor opening the abscess freely when it pointed in a suitable position. In regard to the use of veratrum, his experience showed better results than from any other remedy. Opium he often found could not be taken into the stomach, and it was to avoid this that morphine was used subcutaneously when a patient was suffering torture from abdominal pain.

Laparotomy for Ruptured Pyosalpinx; Error in Diagnosis; Recovery.—Dr. C. S. Wood, of New York County, reported this case. He thought we owed it to the profession at large as well as to ourselves to report errors. He condemned too reckless a performance of laparotomies, directing his strictures particularly against oophorectomy. Women were unsexed and left in a worse condition than before. Should not we as physicians raise our voices in protest against this great sacrifice of women's ovaries when the diseased condition could often be cured by therapeutic and hygienic treatment alone? The case he had to record was one in which an operation had been indicated and justifiable. Mrs. M., twenty-eight, parentage unknown, of previous good health, had suffered from colicky pains and more or less fever; pain had been intermittent. She had been sent away for a time to Saratoga and had been thereby benefited. On May 9th he was called to see her on account of slight fever. He found some local tenderness and tympanites which were attributed to gastric disturbance. On the following day the pain and tenderness had increased. The symptoms progressed until perityphlitic abscess, in course of formation, was diagnosed. Routine treatment had been followed. On May 16th he was called in haste. The messenger reported the patient to be dying. On reaching the house, he found her in condition of collapse, bathed in perspiration and unable to lie down, and making constant efforts to vomit. The pulse was rapid and irregular. After quieting her he was told that she had awakened suddenly with nausea and vomiting. This had been followed by a severe chill. The pain was higher up in the bowels than it had been before. Induration was found to be lessened. Being satisfied that there was rupture of a perityphlitic abscess into the peritoneal cavity, and that laparotomy was her only salvation, the writer sent for Dr. Gill Wylie, who, with his brother, performed laparotomy the same day. No abscess was found; there was no tumor and no inflammation in this region; only diffused inflammation and old inflammatory processes evidenced by thickening. A pyosalpinx of the right side, which had ruptured, called for removal of the sac and ovary. Degenerative changes on the opposite side also indicated the same procedure, which was carried out, the patient making a good recovery in the course of four weeks. The speaker thought the case would fairly represent the difficulty frequently met with in accurately diagnosing abdominal diseases. He had learned afterward that his patient some five years before had undergone an abortion, which might have accounted for the conditions found in the pelvis.

Dr. EDIBOHL said that the issue in the case hinged upon the diagnosis between pyosalpinx and perityphlitic abscess. The

tumor of perityphlitic abscess could almost always be found midway on a line drawn from the anterior spine of the ilium to the umbilicus. These abscesses could rarely, if ever, be reached from the vagina until they were of large size. By passing the middle finger of the examining hand into the rectum and the index-finger into the vagina we could reach higher. He had often found a perityphlitic abscess six or seven days old developed enough to enable him to reach it, whereas a pyosalpinx could never be reached in that way.

Tubal Pregnancy.—The PRESIDENT read a paper on this subject. (See page 421.)

Dr. WILLIAM GOODELL, of Philadelphia, said that he was not in a position to discuss the dicta of Mr. Tait. As he understood the argument, the ovum was always fecundated in an outlying cavity, and it was through disease of the tubes that the ovum was retained. He did not know that he could entirely accept this. As to the frequency of extra-uterine gestation, it probably occurred much oftener than the profession were willing to accept. Dr. Formad, of Philadelphia, was one of the coroners of that city. He had nineteen specimens of cases of extra-uterine pregnancy. These he had obtained from subjects upon whom he had been called upon, by virtue of his office, to make post-mortem examinations where the women had died suddenly. Then add to these the cases supposed to be hæmatocele. He could add but little to the statement made by Dr. Lusk as to the pathology. He was disposed to accept the theory that these pregnancies were all tubal originally; they might become intra-ligamentous, and ventral through a second rupture. If an ovule could travel over to the other side, why could it not drop into the cavity of the abdomen? Still he was willing to accept Mr. Tait's opinion that they were tubal. In reference to the intra-ligamentous form, where, after a few weeks, an ovum burst into the broad ligaments between the two layers of the peritonæum, he described it as behaving like an intra-ligamentous cyst, stripping the peritonæum from its various surfaces of reflection. In that way extra-ligamentous gestation came about. It might get in between the layers of the mesocolon or mesorectum, in which case there were often fæcal fistulæ. In the removal of the intra-ligamentous cysts he had had fæcal fistulæ result in every case. As to the clinical history, there was usually suppression or irregularity of menstruation, sometimes menorrhagia, or again only a mere dribbling. This latter always led him to believe he had to deal with a case of extra-uterine gestation. The fact that no inflammation was present connected with these symptoms should lead one to suspect mischief. Then, of course, nausea might be present and milk appear in the breasts. There was in natural pregnancy frequent micturition; in extra-uterine pregnancy we were likely to find this still more marked. The main symptom, however, was a tumor on one side of the womb, which might be thereby displaced and which must be readily discovered unless the woman was abnormally fat. If we could discover an enlarged ovary, *a fortiori* we should be able to discover a rapidly growing tumor. He thought it was not necessary to make a diagnosis before rupture. The use of the aspirator should be laid aside. A good many years ago he had caused the loss of a woman's life by aspirating the sac, and, although the method had been warmly advocated by Barnes, still the percentage of deaths had been very large, considering the number of cases of operation. He remembered a number of cases in which the cyst had been aspirated and death had resulted.

On the question of electricity, he must differ with Dr. Lusk. If a physician felt confident that a patient had extra-uterine pregnancy, he ought to resort to the knife. Before the speaker had treated three cases of extra-uterine gestation he had believed in electricity. The question had then been in

his mind, what was the best form to use; but, when it came actually to the performance of the operation, he had said to himself, Suppose this fetus was destroyed, what would be the result? Could we remove the adhesions or render the tube impervious? Could we prevent a pyosalpinx? He then showed some specimens from a case in which there had been adhesions to the pelvis and broad ligaments. On the other side the ovary and tube were so adherent that he had been obliged to remove them. He felt that in this case the physician would have been compelled to resort to the knife some months later. Electricity should be used where a patient objected to an operation, or where a physician did not feel himself sufficiently skilled to make the abdominal section. He was satisfied that electricity should not be used for its electrolytic action—that the parts should not be punctured by needles. Most of such cases had ended fatally. His feeling was that if he recognized the condition before rupture, or suspected it, he would operate. Certainly he would do so after rupture had taken place. In all the cases of operation he believed there had not been a single death, except where the patient was *in articulo mortis* at the time. As to what should be done after the child was viable, he had had only one case, which had resulted in death. He would be disposed, from the light of the literature on the subject, to leave the child until it was still more viable, and then operate in one of two ways. He would attempt to remove the whole sac, or else remove it after removing the child. If he found it impossible to remove the sac, he would sew it to the abdominal walls and put in a large drainage-tube. He thought the Porro operation the safest for the woman. The diagnosis was not always possible. He remembered a case that had occurred a long time ago. The first gentleman called had been Dr. H. Agnew, who had diagnosed cellulitis, giving the usual treatment. The woman had had high temperature, local inflammation, metrorrhagia, etc. The speaker was called and made a diagnosis of pelvic peritonitis. But the patient got no better, the people became disgusted, and he was sent away. Shortly after, Dr. Parvin came to him and said: "Doctor, you made a great mistake; that is a case of natural pregnancy." But after a lapse of some weeks Dr. Parvin sent for him. They decided then that the case was one of retroversion of the gravid uterus. Then it flashed across his mind that they had a case of abdominal pregnancy and everything was clear. The head in this case had come down so low in the pelvis that they could feel the sutures in the cranium. The husband would not permit an operation. Both child and woman died. Dr. Parvin made the post-mortem, and this case had led him to write his book. The speaker concluded by citing a number of cases of extra-uterine gestation which had come under his own notice.

Dr. H. O. MAROY said he had come to listen rather than to speak, and was there to learn something upon the question under discussion. He had watched two cases from the beginning to the autopsy, and both had led him to believe they had been *per se* abdominal. For his part he would not use electricity. It belonged to the general practitioner.

Dr. J. E. JANVRIN, of New York County, said that he indorsed the opinion that surgical treatment should be resorted to in cases of tubal pregnancy, and this was especially indicated when rupture had taken place. He regarded the colicky pains as having great import. When a woman was taken with these in connection with other suspicious symptoms, there was generally slight hæmorrhage external to the tube which he believed accounted for the pains.

The PRESIDENT said he had not mentioned puncture, but he hoped nobody would ever try it. He had used it once by mistake. He had done this at a clinic, telling the students that they were examining an interesting case of hæmatocele. After

a few weeks a fœtus sloughed through the vagina. Luckily, the woman had recovered. Why should not laparotomy be done at once? He had intended this to be the inference from his paper. In case of suspected tubal pregnancy it was good practice, he believed, to perform a laparotomy. The operation was no more dangerous than that for the removal of a Falloppian tube. Galvanism could be used with a comparative degree of safety. The method of employing it was simple, and with it, before three months, we could destroy the fœtus, and as a rule it did not cause any trouble. Galvanism in this respect was an effective method of treatment, and he hoped that those not prepared to operate, as would be often the case in the country, and with no medical help available, would use galvanism. He did not think Dr. Janvrin was quite right in supposing there existed any direct association between the colicky pains and hæmorrhage and rupture; they were too frequently present in other conditions to be regarded as of special significance.

The Value of Laparotomy in Suppurative Peritonitis.

—Dr. J. CROWN, of Erie County, read a paper on this subject. Operative procedures in these cases, he said, had been much lauded within the last few years, and many cases had been reported where great success had resulted, and where it was reasonable to assume the issues would otherwise have been fatal. There were few natural proofs, however, in this relation, and he thought the case he had recorded would be interesting on that account. The child of a Mr. F., of Buffalo, while jumping a rope, in some way had injured the walls of the abdomen. There were no external evidences. The child complained of pain and suffered from tympanitic distension, vomiting, and purging. In thirty-six hours afterward peritonitis was evident. The child, seven years old, was not very strong, and the history of the family and of the parents was certainly scrofulous or tubercular. The child was very pale, and the appearances indicated involvement of the omentum and abdominal veins. Day after day the acute symptoms diminished and diarrhœa had ceased, but the immense distension was most troublesome, rendering breathing exceedingly difficult. On the tenth day there was evident fluctuation. The treatment had been by large poultices and opium. It had been with difficulty that the poultices were borne and applied, as the little one's legs were drawn up. On the twelfth day the propriety of opening the abdomen was suggested to the family as the only way to save the child's life. The writer candidly admitted that he had not urged this very strongly, as he thought the patient likely to die upon the table. On the morning of the fourteenth day he had been afraid the little patient would not live through the day. In the evening he was summoned, the message telling him the child was dying. On reaching the house he found to his surprise that nature had produced the surgical operation. The umbilicus had given way and a gallon of pus had been discharged. A bandage was applied, lactophosphate of calcium, bark, and so on, was ordered, and, to make a long story short, an excellent recovery was made, the patient enjoying better health than before the illness. Could there be plainer proof of the propriety of doing a laparotomy under such circumstances? Nature here had indicated what ought to be done by the surgeon's knife, and probably had done the work better.

Dr. TRUX, of New York County, said that several cases of suppurative peritonitis had come under his observation in the Harlem Hospital. About six months ago a patient had been admitted to his ward. On examination, he had found the man had peritonitis, and was in a state of collapse. He was apparently a strong, vigorous young man, perhaps twenty years of age. He was too weak to give any history of his disease. Just at that time the visiting surgeon came to the hospital, and the speaker suggested laparotomy and washing out of the abdom-

inal cavity; this was done under thorough antiseptic, but the man never recovered from the shock. A few days after, a young woman had been admitted to the hospital with the same trouble and in the same condition; again the speaker advised laparotomy, and within an hour after her admission it was performed. Notwithstanding all possible care, she died. Some few weeks after, a man about thirty years of age was admitted suffering from peritonitis; he had been sick for several days and was in a state of collapse. Laparotomy was advised. The abdomen was opened and the cavity washed out and the man seemed to revive, and for a few hours hopes were entertained that he would recover; but the next day, about twenty-four hours after the operation, he grew very weak, and, in spite of stimulants, died. This had been the speaker's experience. He admitted that they were all unfavorable cases for operation. He believed that many of these patients could be saved if permission could be obtained to operate when they were strong enough to stand the shock. He had during the last few years had a great many cases of peritonitis, and was bound to confess that uniformly they had turned out unfavorably. Comparatively few of the patients had recovered. He looked upon peritonitis now (meaning general peritonitis) as almost certain death. He had made autopsies in many cases, and found the abdomen filled with pus and in as deplorable a condition as could be well imagined.

A member suggested that Dr. Cronyn's case seemed more like a suprapertoneal abscess.

The PRESIDENT said he thought it well settled that cases of suprapertoneal abscesses should be opened above Poupart's ligament. Circumscribed abscesses, which had been common when he had begun practice, were now hardly known. He had cut down through the abdominal walls, found the sac, stitched it to the sides of the wound, and stuffed the cavity with oakum. In these cases of circumscribed abscesses the prognosis was favorable if large incisions were made, the cavity being well washed out and free drainage secured. The washing out of the abdominal cavity in cases of general peritonitis had failed in his own practice, and he would like to know what had been the experience of others in this respect. Replying to a question as to what formed the intra-abdominal wall of these abscesses, he said he thought it was probably the matting together of the intestines.

Dr. T. H. MANLEY, of New York, said that he had never seen a patient recover whose peritonæum had been opened for general suppurative peritonitis. He had been consulted about one case. It had been decided not to let the patient die without giving him the benefit of so harmless an expedient. So he opened down in the direction of Poupart's ligament on the right side. Pus spurted out in large quantities, serous and grumous fluid, of which as much as a quart was removed. They had just commenced operations on the abdominal cavity when the child died on the table.

Dr. CRONYN said that the gentleman who had hinted that the case he had cited was perhaps only a suprapertoneal abscess must imagine that he (Dr. Cronyn) did not know anything about surgery. He very rarely allowed himself to be led into expressions of opinion until he had well weighed the value of his premises. He explained that there had been evident fluctuation on the twelfth day, and this fluctuation had not been confined to two or three or four inches, but had involved the entire abdomen. As to the propriety of opening the abdominal cavity for peritonitis, he merely thought he would give an instance where nature had opened it.

The Use of Dispensary and Hospital Material.—Dr. E. J. C. MINARD, of Kings County, read a paper in which she upheld the utility of free dispensary and hospital material from a

clinical standpoint. Nearly half our girls, she said, entered life in a crippled condition. She emphatically denounced the present methods of education, mental, physical, and domestic, as calculated to stultify girls and render vast numbers of them essentially useless at an age when every part of their organization should be ready to perform its allotted function. She spoke in terms of emphatic approval of the practice of oophorectomy in selected cases. When women got to a condition in which such a measure was indicated they were already unsexed. The disease was one of maturity, and the woman had the right to choose that which would give her perhaps peace and health.

The Microscope in Diagnosis.—Dr. G. E. FELL recounted his personal observations, which went to show that in cases of tuberculosis of the lungs, as against other lung affections presenting a train of similar clinical symptoms, an accurate distinction could be made. He also cited several cases bearing directly on this point.

(To be continued.)

Book Notices.

Phthisis Laryngée. Par le Dr. A. GOUGUENHEIM, médecin de l'hôpital Lariboisière et de la clinique laryngologique, etc., et PAUL TISSIER, interne des hôpitaux de Paris. Avec 13 figures dans le texte et 5 planches hors texte dont 3 en chromolithographie. Paris: G. Masson, 1888. Pp. 11-339.

Dr. GOUGUENHEIM has presented in this volume the most complete and thorough treatise on the subject ever written, and one to which a hearty welcome can be accorded when we remember that no complete and original work on tubercular laryngitis has been published since the classic treatise of Trousseau and Belloc. In the work before us the author has endeavored to bring forward all new questions connected with the disease, as to its pathological anatomy, its symptomatology, and its therapeutics, to criticize them fairly from the standpoint of his own experience, and to give a truthful picture of the actual condition of our present knowledge of it. He has given a fair exposition of the differences of opinion among various authorities upon certain new theories of the affection, desiring to make these theories as generally understood as possible and thus to gain for them the advantage of discussion and, if possible, of proof. Indeed, the main object of the treatise is to place these questions before the general pathologist and not to allow them to remain strictly within the province of the specialist.

Passing over the excellent chapters which precede that on treatment, we find that the author in every instance, having first given the method under his consideration, frankly appends to it the results of his personal experience with its use. Thus, we find that he attaches little importance to the local application of solutions of menthol; that he has used with success applications of solutions of lactic acid to the surface of laryngeal ulcers; that the submucous injections of lactic acid, advocated by some recent writers, he has found too severe for general use; that the use of the curette, valuable when applied to the extraction of necrosed cartilages, is not satisfactory in the scraping of laryngeal ulcers, and that the galvano-cautery, while of assistance in cases where papillomatous projections or polyp-like masses must be removed, and where avulsion of them might be followed by inoculation of the resulting wound, is otherwise not indicated. Applications of iodoform are highly praised, while iodol the author has found unsatisfactory. Salol he considers inferior to iodoform, and he thinks that boric acid, while bene-

ficial in cases where the ulceration is superficial, does not answer well where it is deep. The prognosis, unfortunately, still remains unfavorable, although by modern methods much may be done to postpone and relieve the distressing symptoms of the disease. The book is well illustrated, the colored lithographs being particularly good, while the press-work is so admirable as to merit attention.

Hand-book of the Diagnosis and Treatment of Diseases of the Throat, Nose, and Naso-pharynx. By CARL SEILER, M. D., Instructor in Laryngology and Lecturer on Diseases of the Upper Air-passages in the University of Pennsylvania, etc. Third Edition. Thoroughly revised and greatly enlarged. Illustrated with Two Lithographic Plates containing Ten Figures and One Hundred and One Wood Engravings. Philadelphia: Lea Brothers & Co., 1889. Pp. xii-13 to 373. [Price, \$2.25.]

THE third edition of this excellent hand-book is a decided improvement. The views expressed by the writer are in the main those which have met with general acceptance, and the descriptions of the various methods and manipulations described are concise and clear. The book is well illustrated throughout, the best of the cuts, by the way, being those from drawings furnished by the author himself, several of which are valuable contributions to the old-time stock. Following the sections which deal with the examination of the upper air-passages, there are short chapters on the simpler and more common forms of the diseases of the upper air-passages.

On the Treatment of Cystic Goitre. By T. MARK HOVELL, F. R. C. S. E. London: J. & A. Churchill, 1888. Pp. 5-26.

BEARING in mind the frequency of cystic goitre, and the large number of deaths which have resulted from surgical efforts at curing it, Mr. Hovell has called attention to its treatment in a remarkably well written and useful thesis. He quotes the views of the best surgeons of the day upon the subject, and clearly proves that the best method of treatment is that recommended seventeen years ago by Sir Morell Mackenzie—namely, the evacuation of the cyst by means of a small cannula, injection with a solution of perchloride of iron, two drachms of the salt to the ounce of water, the retention of this solution within the cyst until inflammation of its walls has been established, and, finally, the wearing of the cannula until suppuration has ceased. This plan, he believes, possesses decided advantages, since it is simple and effective and far less dangerous than those in common use.

Congrès pour l'étude de la tuberculose chez l'homme et chez les animaux, 1er session—1888. Président: M. le Professeur CHAUVÉAU (de l'institut). Comptes rendus et mémoires. Publiés sous la direction de M. le Dr. L. H. PÉRIE, secrétaire général. Paris: G. Masson, 1889. Pp. 760.

THE large membership in, and number of papers contributed to, the first congress for the study of tuberculosis in man and in animals sufficiently attest the widespread interest in all that concerns this malady. A review of even a modicum of the papers included in this volume is impossible, and certain general points only can be referred to. There was a consensus of opinion that the milk and flesh of tuberculous animals should not be used for food. In this connection Dr. Guinard called attention to the danger of drinking fresh blood at the abattoirs, referring to such a case in which a carcass was found, on dressing it, full of tubercles. Dr. Galtin made some experiments on the employment of fresh blood to clarify wines, that demonstrated that after five days any tubercle bacilli were destroyed. Local

tuberculosis was considered in papers on arthritic, hepatic, and lupous tuberculosis, as well as tuberculosis of the thymus and salivary glands, the meninges, and the mucous membranes, considerable attention being paid to the subject of the introduction of the disease through the alimentary canal. Various methods of treatment were reported, the results, however, promising no nearer solution of this problem than heretofore.

The second congress will be held in Paris in July, 1890, and the following subjects are announced for consideration: 1. The identity of the tuberculosis of man and the tuberculosis of cattle, poultry, and other animals. 2. The bacteriological and pathological associations of tuberculosis. 3. The confinement of tuberculous patients in hospitals. 4. Agents, not injurious to the organism, capable of destroying the bacillus of Koch, from the standpoint of the prophylaxis and treatment of human and animal tuberculosis.

A Surgical Hand-book; for the Use of Practitioners and Students. By FRANCIS M. CAIRD, M. B., F. R. C. S. (Ed.), and CHARLES W. CATHCART, M. B., F. R. C. S. (Eng. and Ed.), Assistant Surgeons, Royal Infirmary, Edinburgh. With very Numerous Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xv-262. [Price, \$2.50.]

THIS little work is devoted to a practical consideration of the treatment required in minor surgical cases as encountered in daily practice by the surgeon, and of that class of operative procedures demanded in emergencies. Subjects not strictly of a surgical character—such as massage, uralysis, post-mortem examinations, microscopy, etc.—receive also some attention, the minutiae of practical knowledge being generously scattered throughout the whole book. Fractures and dislocations, with the appliances for their treatment, receive the most attention, and in such manner as to make clear the various methods described. The subject of bandaging is well handled, and is made more extensive in scope than in most treatises with which we are familiar, by including handkerchief dressings and various other improvised affairs not usually mentioned. To the best of our knowledge, it is the only surgical work containing a description of that most efficient, neat, and permanent of the bandages for the extremities, which is applied by making a posterior reverse in a figure-of-eight bandage whenever the latter does not adapt itself smoothly to the limb. The method of Kocher for the reduction of shoulder dislocations is a novelty in our surgical literature other than that of a periodical character, and is to be regarded as an important addition to the list of the other methods described in the work. The numerous explanatory cuts are, in most cases, really deserving of the adjective applied to them, and, though the print is finer than is consistent with absolute comfort in reading, it is clear and well done. The small size and flexible cover of the book make it very convenient for carrying in the pocket. In fine, the book is worthy of perusal, and we consider it one of the best of the works that represent the abridged type of medical literature.

A Text-book of Human Physiology, including Histology and Microscopical Anatomy; with Special Reference to the Requirements of Practical Medicine. By DR. L. LANDOIS, Professor of Physiology and Director of the Physiological Institute, University of Greifswald. Third American, translated from the Sixth German Edition. With Additions by WILLIAM STIRLING, M. D., Sc. D., etc. With Six Hundred and Ninety-two Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xxxi-33 to 974. [Price, \$6.50.]

THE third edition of this excellent work appears in a single volume that will make it much more convenient to handle than

the former two-volume edition, and this abridgment has not been at the expense of the matter of the book, for almost two hundred new illustrations have been added, and the work has been amplified in many portions, especially those on the physiology of the circulatory and nervous systems. Dr. Stirling has been a careful editor, and we recall no late investigations in physiology that he has failed to incorporate in the work. All that we said in praise of the former edition is applicable to this, the book fully deserving all the popularity that has been accorded it.

Synopsis of Human Anatomy, being a Complete Compend of Anatomy, including the Anatomy of the Viscera, and Numerous Tables. By JAMES K. YOUNG, M. D., Instructor in Orthopædic Surgery and Assistant Demonstrator of Surgery in the University of Pennsylvania, etc. Philadelphia: F. A. Davis, 1889. Pp. ix-3 to 393. [Price, \$1.40.]

THE title sufficiently indicates the character of this little manual. Every unnecessary word has been excluded, out of regard to the very limited time at the medical student's disposal, and the object of the work is to facilitate the acquisition of this difficult, though essential, subject. It is also good as a reference book for the practitioner, as it presents the facts about which he wishes to refresh his memory in the briefest manner consistent with clearness. It is based mainly on Gray, but other well-known anatomists are quoted. It is well got up and is a valuable book for the purposes indicated.

Essentials of Pathology and Morbid Anatomy. By C. E. ARMAND SEMPLE, B. A., M. B. Cantab., L. S. A., M. R. C. P. Lond., etc. With Forty-six Illustrations. Philadelphia: W. B. Saunders, 1889. Pp. xvi-160.

THIS compend is intended as an introduction to the subject of pathology and morbid anatomy, and to refresh the memory after a more extensive study. For these purposes it is admirably adapted. It is written in a concise manner, and evidently much labor has been expended in condensation. But one criticism occurs to us. The author is very prone to the use of Latin derivatives where Anglo-Saxon would be simpler and therefore more desirable. The cuts are numerous and well executed, and the entire work is got up in a creditable manner.

A Manual of Instruction for giving Swedish Movement and Massage Treatment. By PROFESSOR HARTVIG NISSEN, Director of the Swedish Health Institute, Washington, D. C., etc. With Twenty-nine Original Wood Engravings. Philadelphia and London: F. A. Davis, 1889. Pp. vii-128. [Price, \$1.]

THIS manual is valuable to the practitioner, as it contains a terse description of a subject but too little understood in this country. It is well written, but is rather too concise. A more extensive work would be better to teach one unaccustomed to the work the exact manner in which to make the movements—*i. e.*, one which dealt with the minutie, as well as the broad lines upon which this treatment is based. Still, it is sufficient to give a very clear idea of the value of the treatment and of its method of application. The author acknowledges that it will not cure all diseases, and among those of which he speaks as amenable to this treatment there are very few to which we can take exception. Still, we find it difficult to believe that organic heart disease or paralysis due to pressure of a blood-clot upon the brain can be cured by any such treatment. A certain degree of benefit may be obtained, but we are not yet ready to accept statements of greater results. The book is got up very creditably.

BOOKS AND PAMPHLETS RECEIVED.

Cyclopædia of the Diseases of Children, Medical and Surgical. The Articles written especially for the Work by American, British, and Canadian Authors. Edited by John M. Keating, M. D. Vol. II. Illustrated. Philadelphia: J. B. Lippincott Company, 1889. Pp. xii-1066. [Price, \$5.]

An Introduction to Pathology and Morbid Anatomy. By T. Henry Green, M. D., Physician to Charing Cross Hospital and to the Hospital for Consumption and Diseases of the Chest, Brompton, etc. Sixth American from the Seventh English Edition, revised and enlarged by Stanley Boyd, M. B., B. S. Lond., F. R. C. S. Eng., Senior Assistant Surgeon to Charing Cross Hospital, etc. Illustrated by One Hundred and Sixty-seven Fine Engravings. Philadelphia: Lea Brothers & Co., 1889. Pp. xx-17 to 539. [Price, \$2.75.]

The Story of the Bacteria and their Relations to Health and Disease. By T. Mitchell Prudden, M. D. New York and London: G. P. Putnam's Sons, 1889. Pp. 143. [Price, 75 cents.]

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M. D., LL. D., F. R. C. P., Physician-Accoucheur to H. I. and R. H. the Duchess of Edinburgh; Professor of Obstetric Medicine in King's College, etc. Fifth American from the Seventh English Edition. With Notes and Additions by Robert P. Harris, M. D. With Five Plates and Two Hundred and Seven Illustrations. Philadelphia: Lea Brothers & Co., 1889. Pp. xxv-33 to 671. [Price, \$4.]

Diseases of the Eye. A Practical Treatise for Students of Ophthalmology. By George A. Berry, M. B., F. R. C. S. Ed., Ophthalmic Surgeon, Edinburgh Royal Infirmary, etc. With Colored Illustrations from Original Drawings. Philadelphia: Lea Brothers & Co., 1889. Pp. xvii-670. [Price, \$7.50.]

A Text-book of Physiology. By M. Foster, M. A., M. D., LL. D., F. R. S., Professor of Physiology in the University of Cambridge, etc. With Illustrations. Fifth Edition, largely revised. Part II, comprising Book II. The Tissues of Chemical Action, with their Respective Mechanisms. Nutrition. London and New York: Macmillan & Co., 1889. Pp. xxii-355 to 846. [Price, \$2.60.]

Hygiene and Public Health. By Louis C. Parkes, M. D., D. S. H. Lond. Univ., Fellow of the Sanitary Institute and Member of the Board of Examiners, etc. With Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xvi-471. [Price, \$2.50.]

La uretrotomía interna en la Isla de Cuba es tan inocente como la dilatación progresiva. Por el Dr. Ignacio G. Plasencia, Médico del hospital civil, etc. Habana: Imprenta "La Antilla" de Cacho-Negrete, 1888.

The Climate of Southern California in its Relation to Renal Diseases. By P. C. Remondino, M. D., San Diego, Cal. [Reprinted from the "Southern California Practitioner."]

Intubation in Cases of Foreign Bodies in the Air-passages, with Remarks concerning Feeding after Intubation. By S. J. Meltzer, M. D., New York. [Reprinted from the "Medical Record."]

Reformation in the Practice of Medicine by the Dosimetric Method of Practice. By J. E. MacNeill, M. D. [Reprinted from the "Dosimetric Medical Review."]

Résumé of the Experience of Seventeen Years in the Operation of Dilating Urethrotomy. By Fessenden N. Otis, M. D., etc. [Reprinted from the "Medical Record."]

Cases of Ocular Paralysis. By Alvin A. Hubbell, M. D., etc., Buffalo, N. Y. [Reprinted from the "Buffalo Medical and Surgical Journal."]

Urinary Calculus and Lithotomy. By Thomas W. Kay, M. D., Scranton, Pa. [Reprinted from the "Maryland Medical Journal."]

Clinical Observations on Some of the Effects of Direct and Indirect Traumatism of the Brain. By R. Harvey Reed, M. D., Mansfield, Ohio. [Reprinted from the "Times and Register."]

First Annual Report of the New Amsterdam Eye and Ear Hospital. For the Year ending May 14, 1889.

Transactions of the Texas State Medical Association. Twenty-first Annual Session, held at San Antonio, Texas, April 23, 24, 25, and 26, 1889.

Transactions of the Louisiana State Medical Society at its Eleventh Annual Session, held at New Orleans, La., April 9, 10, and 11, 1889.

Practical Notes on Urinary Analysis. By William B. Canfield, A. M., M. D. [Reprinted from the "Maryland Medical Journal."]

El arsenico como profiláctico del tifo. Por el Doctor Samuel Morales Pereira, Mexico.

New Inventions, etc.

DE BAUN'S OBSTETRICAL ROPES AND HANDLES.

By EDWIN DE BAUN, M. D.,
PASSAIC, N. J.

It is a fact that, with but very few exceptions, during the second stage of labor, women require something to pull on; it may be the physician's or assistant's hands, a sheet fastened to the bed, or some other



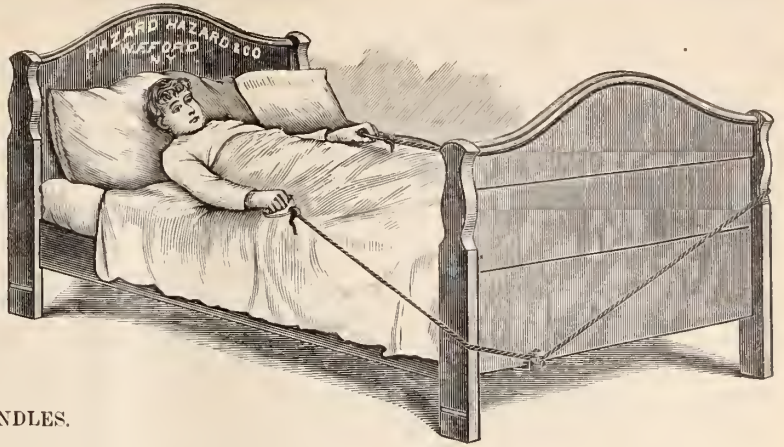
The apparatus disconnected.

contrivance, all of which have proved unsatisfactory to me; and therefore I have devised the use of the *ropes and handles*, the mechanism of which the accompanying cuts will in part explain.

I have used these ropes and handles in many cases of confinement, and they have given great satisfaction to both patients and myself. Although the use of them does not hasten labor, yet they give such ease to the patient that one is fully justified in adopting them. Since this apparatus has gained publicity, many of my patients request that I bring it with me.

The rope is of one piece, and runs through the two holes in the end of the clamp in such a manner that as soon as tension is made the rope fastens itself in the clamp and can not be pulled either way. By means of the two loops in each handle, the ropes can be shortened or lengthened to suit the patient.

The clamp is attached to the foot-board of the bed at the most convenient side, then the rope is slipped through the holes in the clamp so as to bring the shorter rope to the side of the bed on which the patient lies. The other end of the rope is then



The patient lying on her back using the handles.

thrown around the opposite side of the bed. Now the handles are adjusted to the proper length for the patient, and the instrument is ready for use, this adjustment requiring but a moment.

The special advantages alleged for this instrument are: The ropes being so fastened to the bed, the patient can lie on her back or either side, or she may change to any position on the bed and still grasp both the handles. She can pull much more evenly than by taking an assistant's hands, and is not so liable to strain herself as she otherwise might be. The handles being smooth and easily grasped, she can hold them for a much longer time without fatigue to herself or an assistant. Then they allow the physician to give what manual aid he may deem necessary during the pains, especially at the close of the second stage, without being hampered by the patient's movements in her often wild desire to grasp something. The handles, being on each side of the patient, do not in any way embarrass the progress of labor, and fewer assistants are necessary at the bedside. All patients using them, especially if the progress of labor is of long duration, are less fatigued and notably in a much more cheerful frame of mind. Taking up very little room, they are very light, and are easily and rapidly adjusted to any bed.

I do not affirm that these ropes and handles hasten labor in any way, nor do I allege for them anything other than the comfort and convenience that they afford both the patient and the physician. Of the sixty-four cases in which I have used these handles I can not recall one instance in which any trouble could be attributed to the use of the same. Nor have I heard of any patient feeling lame or bruised. Of course the disadvantages of the old plan are obvious, although it has been practiced for a long time, yet I think the points in favor of this apparatus may be accepted. But, should only a few adopt my plan, I shall feel fully repaid for my exertions.

Mr. W. F. Ford, of Hazard, Hazard, & Co., New York, has comprehensively and faithfully carried out my ideas.



The patient lying on her side using the handles.

Miscellany.

The New York Academy of Medicine.—At the next meeting of the Section in Ophthalmology and Otology, on Monday evening, the 21st inst., Dr. H. Knapp will present a case of cataract extraction; Dr. O. D. Pomeroy, one of microtesia; and Dr. J. E. Weeks, one of coloboma of the choroid; and Dr. Knapp will demonstrate the use of Schweiger's perimeter.

At the next meeting of the Section in Laryngology and Rhinology, on Tuesday evening, the 22d inst., Dr. W. K. Simpson will present a case of a tooth in a bronchus; and Dr. C. H. Knight, one of a tooth-plate in the laryngo-pharynx for sixteen days; and Dr. A. G. Gerster, Dr. R. P. Lincoln, Dr. S. D. Powell, Dr. D. B. Delavan, Dr. O. B. Douglas, Dr. Henry Schweiz, and others will take part in a discussion on "Foreign Bodies in the Air-passages, and their Treatment."

At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 24th inst., Dr. R. A. Murray will read a paper on "The Management of Abortion"; Dr. A. P. Dudley will report a case of carcinoma of the uterus and ovary; and Dr. H. C. Coe will read a paper on "A Successful Case of Laparotomy with Supra-vaginal Amputation of the Uterus for Rupture."

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending October 11th:

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhoid fever.	Enteric fever.	Septic fever.	Diphtheria.	Meningitis.	Whooping-cough.
New York, N. Y.	Oct. 5.	1,583,873	605						14	5	13	2	6
Chicago, Ill.	Oct. 5.	1,100,000	356						9	1	26		
Brooklyn, N. Y.	Oct. 5.	313,602	296						1		20		4
Baltimore, Md.	Oct. 5.	500,343	131						4	1	2		
St. Louis, Mo.	Oct. 5.	450,000	135						8	3	9		
San Francisco, Cal.	Sept. 27.	330,000	125						3		5		
Cincinnati, Ohio	Oct. 5.	325,000	102						1		19		
New Orleans, La.	Sept. 28.	254,000	102						2		3		
Washington, D. C.	Sept. 28.	250,000							6		7		1
Washington, D. C.	Oct. 5.	250,000							6		6		
Detroit, Mich.	Sept. 28.	250,000	76						2		4		
Cleveland, Ohio	Sept. 7.	235,000	95						3	1	6		3
Cleveland, Ohio	Sept. 14.	235,000	112						3		5	1	
Pittsburgh, Pa.	Sept. 30.	230,000	103						8	2	6		
Pittsburgh, Pa.	Oct. 5.	230,000	84						6	3	8		
Louisville, Ky.	Oct. 5.	227,000	49						4				
Minneapolis, Minn.	Oct. 5.	200,000	48						5		8		
Kansas City, Mo.	Oct. 5.	189,000	30						5		1		
Denver, Col.	Oct. 4.	135,000	77						20	1	1		
Rochester, N. Y.	Sept. 28.	130,000	29					1			1		
Providence, R. I.	Oct. 5.	127,000	38						2		1		
Indianapolis, Ind.	Oct. 4.	124,450	26						1		5		
Richmond, Va.	Oct. 5.	100,000	35						1				
Toledo, Ohio	Oct. 4.	89,000	29								4		
Fall River, Mass.	Oct. 5.	69,000	47						4				
Nashville, Tenn.	Oct. 5.	65,153	17						2		1		1
Charleston, S. C.	Oct. 5.	60,145	36						1				
Lynn, Mass.	Oct. 5.	50,000	13										
Manchester, N. H.	Sept. 28.	42,000	19						1		2		
Portland, Me.	Oct. 5.	42,000	14						1		1		
Galveston, Texas	Sept. 27.	40,000	10										
Binghamton, N. Y.	Oct. 6.	30,000	11						1				
Auburn, N. Y.	Oct. 5.	26,000	7										1
Haverhill, Mass.	Oct. 5.	25,000	8										
Newport, R. I.	Oct. 3.	22,000	2										
Newton, Mass.	Sept. 14.	21,553	6								1		
Newton, Mass.	Sept. 21.	21,553	6						1				
Newton, Mass.	Oct. 5.	21,553	4								2		
Rock Island, Ill.	Sept. 29.	16,000	4										
Rock Island, Ill.	Oct. 6.	16,000	8								5		
Keokuk, Iowa.	Sept. 28.	16,000	3										
Keokuk, Iowa.	Oct. 5.	16,000	1										

Sulphur as a Disinfectant.—"In disinfection by burning sulphur, Dr. Squibb recommends the evaporation of water equal to four times the amount of sulphur burned. To render the disinfection effective, it is necessary that sufficient moisture be present in the atmosphere with which the sulphurous oxide may unite. The water may be evaporated in a shallow dish, heated to boiling. The sulphur, placed in a smaller dish set in the water bath, is moistened with alcohol and ignited. Walls covered with kalsomine or whitewash should be dampened with a brush before the sulphur is burned."—*Medical and Surgical Reporter.*

THERAPEUTICAL NOTES.

Ichthyol in Chronic Nephritis.—According to the "Gazette hebdomadaire de médecine et de chirurgie," M. Blittersdorf has employed ichthyol successfully in daily doses of 15-432 grains of sodium sulph-ichthyolate in the case of a young girl affected with chronic nephritis for eight months. She had ascites, facial œdema, albuminuria, and amenorrhœa. This remedy provoked an abundant diuresis, caused a reduction of the albuminuria, and gave such relief that the patient could return to her vocation.

Picrotoxin as an Antidote to Morphine.—We find in a recent number of the "Lancet" that Professor Bokai, of Klausenberg, considers picrotoxin to be the best antidote to morphine. Paralysis of the respiratory centers is the cause of death in cases of poisoning by morphine, and as picrotoxin administered in small doses tends to increase the action of the respiratory centers, thereby hindering the paralysis, it is evident that picrotoxin will probably prove useful in such cases. Moreover, picrotoxin counteracts the effect of the morphine by stimulating the vaso-constrictor center of the medulla oblongata.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

ON GUNSHOT WOUNDS OF THE ABDOMEN,
WITH ESPECIAL REFERENCE TO
WOUNDS OF THE INTESTINES.*

By LEWIS A. STIMSON, M. D.,

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UNTIL within a period relatively short a discussion of the subject of gunshot wounds in a society of surgeons in civil life would have had an interest almost exclusively academical, and, apart from theoretical considerations and analogy, would have been based in great part upon experience gained at the edge of the battle-field and in the military hospital. But the times have changed, and now, to paraphrase a well-known quotation, Peace hath her military surgery no less renowned than war; and in some varieties of gunshot wounds, such as those of the trunk and head, the office of the military surgeon has diminished, while that of his brother in civil life shows the budding promise of an important development. The reason is not far to seek. On the one side, military fire-arms now discharge their bullets with such velocity that the wounds they inflict upon the viscera are very severe and often beyond hope; while, on the other hand, the possession of parlor rifles and of pistols of small and medium caliber in all classes of the community has become very common, and the injuries inflicted by such, either accidentally or with hostile intent, have correspondingly multiplied. As an indication of this frequency of occurrence of such injuries, I may say that I can recall, without search of the records, twenty cases of serious bullet wounds personally treated by me during the twelve months last past; of these, seven were accidental, three were inflicted with suicidal, and ten with murderous intent. So long, therefore, as pistols are openly sold at prices that place them within the reach of almost every half-grown or adult member of the community, so long as love, anger and despair, greed and want, are strong motives of action, so long as youth is heedless, and so long as the idiot who thinks it is not loaded goes free in the midst of us—so long will gunshot wounds demand our care and attention and deserve our thoughtful study.

All varieties of these injuries have shared in the benefits conferred by modern improvements in the care of wounds and in the stimulus to effort created thereby, but, while in wounds of the extremities the gain has been in the preservation of limbs that would otherwise have been lost, in gunshot wounds of the abdomen the interest is infinitely greater, for the issue is of life or death, and it is beyond dispute that many lives have been already saved by operation during the last five years which would certainly have been lost under the methods of treatment which had previously prevailed. In a collection made by Dr. W. B. Coley, of 124 published and unpublished cases treated by

laparotomy, which is the largest thus far made, and which has been in part published,* there are 37 recoveries, in many of which the nature of the injuries was such as to furnish ample ground for the belief that, had the operation not been done, the patients would have succumbed. It has, therefore, been fully established that formal laparotomy undertaken to discover and repair gunshot wounds of the intestines may save lives that are in imminent peril; and that, consequently, under certain circumstances, it is a proper and justifiable operation. But from this to the position that in every gunshot wound of the abdomen that is probably perforating, or even in every one that is certainly perforating, a laparotomy should be immediately done, is a long step. It is not enough to have shown that some patients have survived laparotomy; it is not enough to have shown that those who have died without operation could have been saved only by one; it is not enough to have shown that laparotomy for other morbid conditions is daily done with a large measure of success and safety. It must also be shown that it saves a larger proportion of wounded patients than other methods save, and, even if this is done, it must still be ascertained whether we can not discriminate between the different injuries, and recognize those in which it is proper to operate and those in which it is wiser to abstain. Experience alone can supply the materials for an answer to these questions; for the latter we must study individual cases; for the former we must have integral statistics comprising a sufficient number of cases. Lists made up of reported cases contain, as is well known, an undue proportion of successful ones, and I have therefore sought to obtain a list of all the cases that have been treated by laparotomy in the hospitals of New York city. In default of a similar list drawn from a larger area, this will best serve to determine the percentage of success for comparison with the results of other methods. In addition, I shall report three new cases, one of which ended in recovery; and shall further ask your attention to a consideration in some detail of various matters connected with the diagnosis, prognosis, and treatment.

The three new cases are as follows:

CASE I.—C. Z., aged twenty-seven, unmarried, a German, shot himself with suicidal intent, at 3 A. M., on December 6, 1888, with a pistol of .32 caliber. On admission to the Chambers Street Hospital he presented but slight evidences of shock; his temperature was normal, pulse good, and respirations regular but shallow. He complained of severe pain in the abdomen when moved or touched. There was a small blackened wound midway between the umbilicus and the ensiform process, half an inch to the left of the median line.

I saw him at 3.15 P. M. He had vomited once, and had voided a large quantity of very bloody urine. He was very pale, his surface cool, pulse small and quick. His manner was apathetic, he answered questions shortly and unwillingly, and made no complaint of pain except when the abdomen was pressed upon. The abdomen was not distended; it was resonant anteriorly and dull in the flanks; liver dullness normal.

Ether was administered, and the abdomen opened in the median line from the ensiform process to the umbilicus, giving

* Read before the New York Academy of Medicine, October 17, 1889.

* Dr. W. B. Coley, "Boston Med. and Surg. Journal," Oct. 18, 1888.

issue to a considerable quantity of bloody serum and a few small blood-clots. On the anterior aspect of the stomach, three inches from the pylorus, a circular perforation was found, and was at once closed with a row of silk Lembert sutures.

On raising the omentum and transverse colon, two perforations, three fourths of an inch in diameter and half an inch apart, were found at the upper end of the jejunum, and were closed with a double row of Lembert sutures, the fold being longitudinal. Just above and to the left of the junction of the duodenum and jejunum was a large ragged wound in the parietal peritonæum, through which blood flowed freely, evidently from a wound of the pancreas; it was closed, and the bleeding checked by deep sutures. In the mesocolon, two inches above the lower end of the duodenum, was a perforation, the bleeding from which was checked by a suture at its lower angle. Finally, a circular perforation of the posterior wall of the stomach was closed with a double row of sutures. A large quantity of liquid and clotted blood was removed from the abdominal cavity.

The ball had evidently first traversed the stomach, then the mesocolon and jejunum, and had then entered the posterior abdominal wall, wounding the pancreas, and undoubtedly the kidney also, as shown by the blood in the urine.

The extent of the injuries and the patient's condition contra-indicated further interference. The wound was closed, and he died half an hour afterward. At the autopsy the ball was found to have traversed the left kidney and to have lodged under the skin behind it. No other wounds of the intestine were found.

CASE II.—James D., aged thirty-seven, was brought by the ambulance to Chambers Street Hospital at 1.15 A. M. on March 16, 1889. He had been shot a few minutes previously while kneeling upon the ground, his assailant standing over him. The weapon was a pistol of .38 caliber. Condition good; no general pain; marked tenderness above right inguinal region; respiration, 20; pulse, 70; temperature, 98° F. There were two bullet-wounds—one about three inches and a half above the free margin of the ribs and an inch and a half to the left of the median line, the other two inches below the border of the ribs and two inches and a half to the right of the median line. At 4 A. M. he passed six ounces of clear urine.

As I was absent from the city, Dr. Charles H. Wilkin, assistant surgeon of the hospital, was summoned, and he operated at 8 A. M., seven hours after the receipt of the injury.

The wound in the chest was probed and found to pass downward and outward without perforating. In the abdominal wound the probe passed downward in the wall for a distance of three inches, and then entered the abdominal cavity. Median incision six inches long between the pubes and umbilicus, giving issue to considerable bloody serum, containing flakes of lymph and some feces. Six perforations were found at three points in the small intestine—the first pair eighteen inches below the duodenum, the second pair two feet lower down, the third at the lower end of the ileum. The bullet was imbedded in the mesentery, near the cæcum. Each wound was closed with a single row of Lembert sutures; two bleeding points in the omentum were ligated. The cavity was flushed with hot water, and the abdominal incision closed. The patient did well for twenty-four hours, but when I saw him on the following day septicæmia was evidently present. He died at 7.30 A. M. on March 18th, forty-eight hours after the operation. The autopsy showed general peritonitis and congestion of the left lung.

In connection with this case it is proper to state that the operation was performed rapidly and skillfully, that the operator had had a large experience in abdominal surgery, and that all antiseptic precautions were rigidly observed. A

supply of silk and sponges specially prepared for use in laparotomies is kept in the hospital, the instruments are always boiled before an operation, and the assistants are skillful and keenly alive to the possibilities of accidental infection and to the need of constant care and watchfulness. It is to be remembered that feces had escaped into the peritoneal cavity, and that peritonitis had already set in before the operation was undertaken.

CASE III.—D. D., aged twenty-eight, a rather fleshy woman, was brought to the Chambers Street Hospital in a cab at 9.15 P. M., April 19, 1889. Six hours previously a man had pressed against her abdomen the muzzle of a Flobert pistol, caliber .22, thought to be unloaded, and discharged it. She had subsequently vomited whenever she had taken anything into the stomach, and complained of much distress in the epigastric region. The ball had passed through a wrapper and chemise without causing any recognizable loss of substance in them, and had entered the abdominal wall two inches and a half to the left of the median line and an inch and a half below the umbilicus, producing a blackened wound a quarter of an inch in diameter with depressed edges.

The patient had walked into the hospital and showed but little shock; her manner was quiet, she talked freely and naturally, and complained only of pain in the pit of the stomach, which she attributed to indigestion, and was confident would be relieved by a plaster. Her body was covered with a fading syphilitic eruption. The abdominal wall was rounded, thickly coated with fat, and its muscles contracted sharply when it was pressed; in other respects its examination was negative.

The operation was begun under ether at 12.15 midnight, nine hours after the receipt of the wound. The course of the bullet was traced by means of a longitudinal incision three inches and a half long, having the wound at its center; it passed backward through two inches of fat and ended in a small slit in the peritonæum, through which blood escaped quite freely from the abdominal cavity.

A second incision, ultimately seven inches long and extending downward from a point three inches above the umbilicus, was next made in the median line, and the omentum, which was firmly adherent to the left ovary and tube, was pushed to the left; the small intestine was contracted and of a dull-red color; a ragged opening three eighths of an inch in diameter, with everted mucous membrane, was found on the surface opposite the mesenteric attachment, and closed with a single row of three Lembert sutures of fine iron-dyed silk; an inch and a half from it, longitudinally, was a second smaller opening, which was closed with a single Lembert suture. The sigmoid flexure, lying in close proximity to the wounded loop of small intestine, showed two wounds immediately opposite each other which the probe showed to be perforating; one, small and round, was at the base of an appendix epiploica in the outer longitudinal band of muscular fibers; the other, larger and ragged, was in the side of an appendix attached to the inner longitudinal muscular bundle; each was closed with a single suture. A wounded artery in the mesentery, midway between its visceral and parietal attachments, which bled profusely, was secured with a catgut ligature. Clotted and liquid blood, estimated at about one quart in amount, was removed, and the peritoneal cavity cleaned with warm sponges. The cavity was not washed. The entire length of the small intestine, which had been turned out of the abdomen and protected with hot towels, was then gone over rapidly in search of other wounds, and, none having been found, returned into the abdomen. It was noted that during the operation they had become distended

to more than double the size they had when first exposed. The omentum had been perforated by the ball, but was not bleeding; its attachment to the internal genitals made the examination and cleansing of the cavity quite difficult. The bullet was not found.

The abdominal wound was then closed by means of stout silk sutures, embracing the entire thickness of the wall except the peritonæum, which latter was closed with several successive continuous sutures of catgut. The tension of the abdominal wall was so great that the peritonæum could not be closed with a single suture, and the method employed was as follows: Silk ligature was passed about two inches below the upper angle of the wound, and drawn tightly enough to permit the peritoneal opening above it to be closed, and two permanent silk sutures to be placed in the interval above it; a second temporary silk suture was then placed a little lower down, the first one relaxed, and the second section of the wound closed in the same manner as the first; and this was repeated until the entire wound was closed except at the lower angle, where a rubber drainage-tube was introduced to Douglas's pouch. Between the sutures three short drainage-tubes were placed to drain the parietal wound.

The incision made to explore the track of the bullet through the wall was closed with silk sutures and drained. The dressing was of iodoform and creoline gauze, absorbent cotton, and a body bandage.

During the first thirty-six hours the patient received no food or drink except water, a teaspoonful at a time, and was kept slightly under the influence of morphine. On the third day (April 22d) the drainage-tube was withdrawn from the abdominal cavity; on the fifth day her menstrual flow appeared and a diarrhœa began, which lasted, with intermissions, until May 2d. On April 27th most of the sutures were removed, and when the wound was again inspected, two days later, the remaining ones were found to have cut out and the sides of the wound to be gaping; it was lightly packed with iodoform gauze, and the edges approximated with strips of adhesive plaster. On May 3d the regular administration of the protochloride of mercury was begun with the object of preventing any harmful influence of the syphilitic virus upon the healing of the wound. On June 6th the wound was entirely healed, and the patient was allowed to leave the bed; and on June 30th she was discharged cured.

A feature of special interest in this case is that, although the bullet was small (caliber .22), it had produced a wound of the small intestine three eighths of an inch in diameter, evidently by entering the gut obliquely, and had so wounded a mesenteric artery as to endanger the patient's life by hæmorrhage. I would also call attention to the absence of shock and of all marked symptoms of grave injury. The case was clearly one in which, according to the views held by a number of prominent surgeons, an expectant attitude should have been taken, to await the possible development of grave symptoms, a course which, in my judgment, would have ended fatally by hæmorrhage or by septicæmia. The preliminary exploration of the track of the bullet showed perforation of the cavity and the existence of an important hæmorrhage, and thus, I think, made the subsequent proceeding imperative.

The operation of freely opening the abdominal cavity to search for and repair gunshot wounds of the intestines is not a new one; it does not even belong solely to the period of antiseptic surgery, but it was performed, and successfully performed, more than fifty years ago. The principles which

lie at its foundation have, of course, been apparent since such wounds were first inflicted; no demonstration was needed to show the desirability of closing the wound in the intestine or the advantage of a free opening in the abdominal wall if sutures were to be applied or if the wound was to be sought, but the fear of making such an opening or of operating upon the intestines was so great, and indeed so well founded as surgery was then done, that surgeons, with but few exceptions, almost down to the present time, practiced and taught abstention, except when the wounded loop of intestine protruded through the opening in the abdominal wall or lay in plain sight beneath it. Under such circumstances they sutured the intestine and returned it, or they promoted the escape of feces from within the cavity and sought safety in the establishment of a fæcal fistula. Occasionally the possibility of advantage in a more active intervention was more or less hesitatingly suggested, and Baudens, in a work published in 1836,* reported a case operated upon in 1831, which is not only the first instance of the operation we are considering, but which was also said by the editor of the "Medical and Surgical History of the War of the Rebellion" to be, in 1877, "perhaps the only instance of completely successful enterorrhaphy for shot-wound on record." After having recognized a wound of the transverse colon by introducing his finger, he enlarged the abdominal wound, drew the bowel toward it, and told the patient to cough; this was immediately followed by the protrusion of the wounded bowel and by the escape of intestinal gas from the abdominal cavity. He closed the wound with three Lembert sutures, cut their ends short, and returned the intestine. The subsequent course of the case did not differ from that of an ordinary wound of the abdominal wall, and the patient recovered.

He had previously treated a similar case by drawing out the intestine through the abdominal wound and suturing it; the patient died on the third day, and the autopsy showed that a fæcal extravasation had taken place from an undetected wound in the cæcum. It seems not unlikely that this experience led him to make the free opening in the next case and to the expression of opinion (p. 324): "I do not fear to place the knife in the perforation made by the projectile in the wall of the abdomen, in order to enlarge it, to pursue into that cavity the examination of the course it has taken, and to apply to the intestinal lesions a prompt and effective remedy."

It will be instructive and clarifying briefly to trace the course of opinion upon this subject during the current century, and then to examine the new material that more recent experience has brought to bear upon the questions involved.

It is to be remembered that the earlier experience is drawn almost wholly from military surgery, and that the bullets were much larger and discharged with a much lower initial velocity than at the present time. The wound of the abdominal wall appears usually to have been large enough at least to permit the introduction of the finger and often to permit spontaneous protrusion of a wounded loop of intestine. In 1799 Larrey passed a ligature through such

* Baudens, "Clinique des plaies d'armes à feu," 1836, p. 336.

a protruded loop of the ileum which had been divided by a musket-ball, returned it to the abdominal cavity, and fixed it by means of the ligature in the parietal opening, so that the contents of the bowel could freely escape. The patient recovered, and without a permanent fecal fistula. This appears to be the maximum of surgical interference approved at that time and for many years subsequently. The possibility of successfully suturing an incised (not a gunshot) wound of the intestine had been known for over two hundred years, and perhaps very much longer,* and in the decade between 1820 and 1830 the experiments of Lembert and of Jobert not only brought the subject of enterorrhaphy very prominently to the attention of the profession, but also gave us methods of closing wounds or reuniting divided ends which are still accepted as the best, with only such modifications and additions as the use of absorbable sutures has entailed. Aided by these acquisitions, Baudens treated his two cases as has been described, and favored the preliminary enlargement of the parietal wound. His example was followed in 1848 by Nélaton,† and in 1849 by Pirogoff‡; the former overlooked one perforation and lost his patient; the latter lost sight of his patient on the fourth day. It does not appear in the accounts that either enlarged the parietal wound, and both quote their cases to support the opinion that it was advisable to resort to enterorrhaphy and not to abstain entirely from operative interference. Pirogoff says: "I regret that in the cases that came under my observation [in the war in the Caucasus] I employed the suture only once, and then in a sort of desperation. I gave up the other wounded as lost; as enterorrhaphy required time and many wounded were awaiting my assistance, I did not use the suture. But just this desperate case proved that much is to be expected from operative interference." Lohmeyer, writing after the Danish War, said that probing of the abdominal wound was indicated only when peritonitis had been set up by the escape of the contents of the intestine from a concealed wound in it and threatened to become fatal, and that then he would follow the example of Baudens and suture the bowel rather than try for a fecal fistula. Legouest, after the Crimean War, expressed similar views, and Demme, after the Italian War of 1859, referred to the treatment only to say that most authors condemned it, and that, in his opinion, it would prove impracticable in the large majority of cases because of the uncertainty of diagnosis. In the War of the Rebellion enterorrhaphy was done in three cases for shot wound of the small intestine by Bentley, Judson, and Gill. In all these cases the wounded gut protruded, and all terminated fatally. Kinloch operated in 1863 in a case of fecal fistula following a gunshot wound received nearly eight months previously. He laid open the peritoneal cavity, excised half an inch of the upper and two inches of the lower portion of the bowel, brought the cut edges into direct apposition with silver sutures, and effected a partial apposition of the serous surfaces

by a few Lembert sutures. The patient recovered, but union failed, and a small fecal fistula persisted.* At the close of the war the late Dr. Hamilton † wrote: "Be assured the patient will have a better chance for life if we let him entirely alone; and it surprises me that any good surgeon would think otherwise." In 1867, after the Austro-Prussian War, Neudörfer says: "What, then, shall the physician do with a gunshot wound of the bowel? Nothing at all." In the edition of his "Surgery" printed in 1872 the late Dr. Gross, who, thirty years previously, had written strongly and with great authority in favor of enterorrhaphy in incised wounds of the intestine, repeats his approval of it, but adds (vol. ii, p. 667): "These remarks are more especially applicable to incised wounds. In gunshot wounds no benefit, it seems to me, would be likely to accrue from such a course of treatment [*i. e.*, to enlarge the abdominal orifice, to seek for the wounded tube, and to sew up the gut], as the bowel is generally pierced in a number of places, and the case, on this account, must, therefore, generally be fatal."

In the same year, after the Franco-German War, Beck argued in favor of a bolder interference, but Eriehsen ‡ rejects all operative measures unless the wounded loop protrudes; and if feces actually escape into the abdominal cavity, he only removes the sutures from the parietal wound and gently separates its edge to afford an outlet. Finally, in 1877, the editor of the "Medical and Surgical History of the War of the Rebellion," after an elaborate review of the subject, says (p. 128): "Reflection . . . leads unavoidably, in the writer's opinion, to a conviction of the propriety of incising the abdominal wall when necessary, in order to expose and sew up the wounded gut concealed within the cavity, whether divided by a cutting instrument or by a shot. The obstacles to success are obvious; but it is a mortal peril which demands an extreme remedy." He adds, in a note, that "over one hundred instances [of enterorrhaphy for incised and gunshot wounds] have already been adduced, with such a large percentage of recoveries that, with every allowance for the suppression of unfortunate results, the evidence is very encouraging"; and he further supports his opinion (note on p. 126) by quoting similar ones contained in letters sent him by Dr. J. S. Billings, Dr. Hunter McGuire, and Dr. N. S. Lincoln. Thus Dr. Billings writes: "When there is reason to suspect intestinal injury, it appears to me to be proper to enlarge the opening, if necessary, to ascertain the nature and amount of injury, . . . to employ sutures or ligatures where needed, and to cut these short and return the injured viscera." Professor McGuire says: "If the shock, thermometer, etc., indicate wound of the bowel, cut down and sew it up." And Professor Lincoln: "In shot wounds of the intestine, unattended by protrusion, unless the perforation may be in

* See "Med. and Surg. Hist. of the War of the Rebellion," Part Second, surgical vol., p. 63, note 2, and p. 123, note 5.

† Nélaton, "Path. ext.," vol. iv, p. 153.

‡ Pirogoff, quoted in "Med. and Surg. Hist. War of Rebel.," Part Second, surgical vol., pp. 125 and 127.

* These cases, and most of the historical and bibliographical facts here mentioned, have been drawn from the extremely interesting and valuable chapter upon this subject in the "Med. and Surg. History of the War of the Rebellion," Part Second, surgical volume.

† "Treatise on Mil. Surg. and Hyg.," p. 354; "Med. and Surg. Hist.," p. 73, note.

‡ Eriehsen, "Surgery," vol. i, p. 553.

the iliac region, with a reasonable likelihood of implicating the part of the large intestine uncovered by peritonæum, and therefore avoiding the risk of intraperitoneal extravasation, it is the safest course to enlarge the track of the ball and to close the intestinal wound by suture."

These opinions mark the beginning of the change, and doubtless were in some degree inspired by growing confidence in antiseptic surgery. It is noticeable in all that had preceded that the discussion always began with the assumption that a positive diagnosis of wound of the intestine, and often of fæcal extravasation into the peritoneal cavity, existed, and the supporters of active interference had gained, even in that class of cases, so few adherents that the instances could almost be counted upon the fingers, and Baudens's enlargement of the parietal wound still remained unique. Of the cases which form so large a proportion of those now encountered in civil practice—cases in which there is at first no evidence of intestinal wound, and in which even the fact of perforation of the abdominal wall is in doubt—there is no mention in the discussions. Apparently it was the universal practice to give opium and await the result. The few cases in which enterorrhaphy had been done were of such a character that it is hard to see now how it could have been avoided; the wounded intestine lay in plain sight at the bottom of a large parietal opening, or was protruded through it. If anything was to be done, what else could it have been? So far as can be judged from reported histories, the line of treatment habitually followed was to administer opium, for the purpose of relieving pain and checking peristalsis, to apply ice to the abdomen, or sometimes to blister the surface to control inflammation, to keep the parietal wound open, and to "maintain the utmost cleanliness," by which attractive phrase was meant the removal from the surface of such fæcal and inflammatory discharges as escaped from the interior of the abdomen.

Of the results of this treatment we can form, notwithstanding the vast number of cases reported, only a general idea, because the records probably fail to include a considerable number of fatal cases abandoned upon the field of battle without having received professional care. The Surgeon-General of the United States (*loc. cit.*, p. 202) reports 3,429 cases of penetrating shot-wounds of the abdomen, with visceral injuries, in which the result is known; of these, 421 recovered (12+ per cent.). In addition, there are 19 cases, with 12 recoveries, of penetration without known injury to the viscera. Colonel Otis says (p. 204): "The comparatively small category of cases of recovery after indubitable shot-penetration of the abdomen may be arranged in three divisions. The first and largest group would include the cases of perforation of the large intestine in parts uncovered by peritonæum, followed by recovery with or without abnormal anus. The second, a group so small that the absolutely authenticated examples can be counted on the fingers, comprises the instances of wounds of the solid or membranous viscera, with extravasation of their contents within the peritoneal cavity. In the third division would be placed the cases of recovery after undoubted penetration or perforation of the peritoneal cavity without visceral injury, or, as it would be safer to say, with very slight visceral

injury. On rigorous examination, these also would probably be found few in number." A review of the records of the cases described as recoveries after wound of the large intestine (Cases 235 to 293 and 295 to 299), which must have been included by Colonel Otis in the first of his three divisions, shows little or no reason in any of them for supposing that the intestine was wounded only at a point where it was uncovered by peritonæum, and in a large number of them there seems to be as much reason for supposing that the small intestine was wounded as that the large one was. Thus, in all the cases except five (295 to 299, in which the ball was voided at stool) the ball traversed the abdominal cavity, making its entrance or exit, or both, through the parietal peritonæum, and in a large number of them the wound of entrance or exit was within a few inches of the umbilicus. There is, in my judgment, nothing in them to justify the opinion indicated by his classification that wounds of the large intestine are so much less fatal than those of the small intestine; and, assuming his opinion to be correct, there is nothing in the position of the parietal wounds to enable a surgeon in any similar case to recognize which part of the intestine was wounded. I desire particularly to emphasize this fact, because Colonel Otis's opinion appears to be responsible for the frequently repeated statement that wounds of the small intestine are necessarily fatal, while those of the large intestine are much less dangerous, and the frequent repetition creates the impression that the opinion has been independently formed by many, or that it has a solid and unquestionable foundation. Taking the figures as they are given, they indicate a mortality of gunshot wounds in military practice of about 87 per cent.—say seven patients in every eight—and this, though somewhat larger, is still in substantial accord with the less complete unofficial statistics of individual experience in other wars grouped by Colonel Otis in another table (*loc. cit.*, p. 203): 1,146 cases, with 861 deaths (75 per cent.).

But we are considering the question to-day from the standpoint of civil practice, and we know that the circumstances of those wounded in battle differ greatly in some important respects from those of the wounded received into our civil hospitals. I have therefore collected from the case-books of several of the hospitals of New York the cases treated in them during the ten or fifteen years preceding 1885—a period during which the so-called "do-nothing" plan was habitually followed. The list is as follows:

HOSPITAL.	Cases.	Deaths.	Recoveries.
Chambers Street, 1876-1884	13	11	2
New York, 1884	4	2	2
Bellevue, 1870-1884	8	2	6
Roosevelt, 1872-1885	6	2	4
St. Vincent, 1880-1885	5	3	2
Presbyterian	1	..	1
Total	37	20	17

The question at once arises, In how many of the cases tabulated as recoveries was the wound actually perforating? and it must be admitted that the question can not be categorically answered. But I have included only those

cases in which the recorded symptoms—pain, vomiting, shock, abdominal distension, and tenderness—were such as would be held to-day by the supporters of active interference to justify an explorative laparotomy, and I think much weight should be given to the deliberate diagnosis of the attending surgeon. In some the diagnosis is absolutely beyond question, as, for example, in one of the Roosevelt Hospital cases in which Dr. Sands vainly sought, by a long incision of the skin, to trace the course of the bullet; two days later feces escaped through the right inguinal canal, and, after this flow had lasted for some time, recovery followed. Corroborating evidence of the correctness of the diagnosis is, I think, to be found in the fact that, although in the last five years twenty-nine laparotomies have been done in this city for pistol-shot wounds of the abdomen, I have found no record and have not heard of any case in which the operation was undertaken and the wound found not to be penetrating. It seems highly improbable that, in about ten years preceding 1885, there should have been ten or fifteen cases in which an erroneous diagnosis of penetration was made, and that in the five following years there should have been no such mistake. On the other hand, I do not believe that the above thirty-seven cases include all that have occurred here within the period covered by the records, or that the rate of mortality of this table is as high as it would be if the record were complete; but, even if it were increased by the addition to the list of an equal number of fatal cases, its smallness would still, I think, be a surprise to all. Some of our hospital records are well known not to be complete, and a large proportion of the cases that escape recording are those in which death follows promptly after admission to the hospital. The foregoing table, therefore, is offered mainly to show that recovery after a perforating shot-wound of the abdomen, with probable injury of the small intestine, under non-operative treatment, is by no means so great an exception as it is generally alleged to be.

The great majority of these cases are of date subsequent to the publication of the opinions in favor of laparotomy quoted above. In all of them the treatment consisted almost solely in the administration of opium, and in many the parietal wound was washed with some antiseptic solution and then covered with carbolic or iodoform gauze. Surgeons possessed, practically, all the knowledge of the pathology of abdominal shot-wounds, of the various processes by which death is caused or repair effected, and of the methods of operation upon the intestine which they now have. They knew what was necessary or desirable to be done to increase the chances of recovery, but their hands were stayed by the fear that to do what was necessary or desirable was even more dangerous than to leave it undone. The fear had heretofore been well founded, and operations in which the peritoneal cavity was freely opened deservedly ranked among the most serious. But with generalization of the antiseptic method came increased security and confidence, and came also a revision of former notions of what was practicable and permissible, and a great increase in the range of operations. The opening of the peritoneal cavity for the relief of disease was done not only with greatly increased

frequency, but also with great success, and it became only a question of time and opportunity when it should be extended to gunshot injuries. The first operation under the new conditions and new ideas was done by Dr. Sévastopoulo, of Constantinople, in October, 1880, but, as it was not published until 1887,* it remained without effect upon the opinions and practice of the profession. It was a repetition, and the first repetition if the cases of Nélaton and Pirogoff are excluded, under the protection of antiseptics, of Baudens's operation in 1831.

He was called an hour after the accident to a muscular young man who had been struck at a point midway between the umbilicus and the anterior inferior spine of the right ilium by a small pistol-ball which was thought to have been altered in shape by glancing from a neighboring stone. The wound was nearly an inch long and at once gave issue to a yellowish liquid and blood; pressure forced out clots and gas having an intestinal odor. Although unprovided with instruments or an anæsthetic, the surgeon immediately enlarged the wound to a length of six inches with a stout pair of scissors; about a quart of clotted and liquid blood escaped, followed by the loops of intestine soiled with feces. On the convexity of one loop was a wound so large and irregular that he thought it best to resect the part and reunite the ends by invagination (Jobert's method), fastening them together by Lembert sutures. The hæmorrhage which came from the divided epigastric artery was arrested, the abdomen washed out with a hot carbolic solution, and the abdominal wound closed with silk sutures, which were removed on the eighth day. When seen a year later the patient was again following his calling of wrestler.

The case was similar to those that had formed the basis of the discussions of the preceding half century in this respect—that the existence of a wound of the intestine was certain, and of an extravasation of feces probable. It was novel in its free incision and in the use of a carbolic solution to cleanse the cavity.

In the following year, 1881, November 1st, Dr. R. A. Kinloch,† of Charleston, S. C., operated upon an adult negro who had been shot eleven hours previously with a pistol of .32 caliber; there was little shock, considerable abdominal tenderness, and pain in the sacral region. The finger introduced through the anus detected a perforation on the posterior wall of the rectum. He opened the abdomen by a median incision between the umbilicus and pubes, closed three perforations of the small intestine with Lembert sutures, and, as he was unable to find the wound in the rectum, he inserted a drainage-tube and closed the abdominal incision about it. The patient died ten hours later, and at the autopsy it was found that a wound of the small intestine had also been overlooked, as well as the one in the rectum.

This was the first case in which the operation was distinctly exploratory—that is, in which the abdomen was freely opened to discover and repair a suspected wound of the intestine; for if the wound previously recognized in the rectum had been the only one intended to be treated, it would hardly have been approached through the anterior abdominal wall. To Dr. Kinloch belongs all the credit that attaches to such priority. Moreover, the idea was not a new

* Sévastopoulo, "Bull. de la soc. de chir.," 1887, p. 274.

† Kinloch, "North Car. Med. Journal," July, 1882, p. 1.

one to him, and the operation was not done simply because others had suggested it. I have above referred to the operation he did in 1863 for the closing of a preternatural anus created by a gunshot wound; in reporting that case, he spoke against "the almost universal practice of abandoning intestinal lesions to nature rather than risk opening the peritoneal cavity." Fourteen years previously* he had formulated the principle which he applied to this case, and he deserves not only the credit which goes with priority in practice, but also the much greater one which attaches to originality in conception. But—his patient died; and the stamp of success, *iste stultorum magister*, is as necessary to the recognition of the merit of an idea as to that of an individual. The case passed unnoticed, and this, too, notwithstanding the fact that, in a paper read before the New York Academy of Medicine in October, 1881, and published in the "British Medical Journal" in the following December, the late Dr. Marion Sims had spoken strongly in favor of the practice.†

Two years later (September 30, 1883) came the well-known successful case of Koehler. It was published in December, 1883, and an abstract of the case appeared in the "British Medical Journal," July 12, 1884, p. 78, and was copied in the "Am. Journal of the Medical Sciences" in October, 1884, p. 574, and this was followed the next month by Dr. Bull's successful case which was reported to the New York Surgical Society, January, 1885, and has done so much to spread the practice. How great that spread has been is shown by the statistics collected by Dr. W. B. Coley, above quoted. They contain 124 operations, divided as follows according to years: Previous to 1881, 3; 1881-'84, 4; 1885, 9; 1886, 22; 1887, 35; 1888, 32; 1889, 19. One hundred and three of the 124 operations were done in the United States. The mortality is 70 per cent.

The untrustworthiness, in respect of the percentage of mortality, of statistics made up largely of published cases is well known, and is strikingly shown by Dr. Coley's experience and by the results of my own search of the records of New York city. Dr. Coley's first collection, published in October, 1888, contained seventy-four cases with a mortality of about 60 per cent.; his further search has raised the mortality to about 70 per cent., although very few new cases of later date than his publication have been added. His published list contains nine published New York city cases, with three recoveries and six deaths. Only three additional operations—two deaths, one recovery—have since been done here. They are those reported this evening, and yet I have been able to increase the list by unpublished cases from

* His case was reported in "Am. Jour. of the Med. Sci.," July, 1867.

† On February 9, 1882, Fitzgerald ("Austral. Med. Jour.," v, 1883, 33), and on February 26, 1883, Lloyd ("Brit. Med. Jour.," 1883, i, p. 560), operated unsuccessfully; but neither case belongs fairly in the category of those we are considering. In Fitzgerald's the wound in the side was large and lacerated and caused by a charge of bird-shot; it was enlarged upward and downward, and ten inches of small intestine resected. The patient survived five days. In Lloyd's the operation was not done until three days after the injury, and, strictly speaking, was only to establish drainage in a case of suppurative peritonitis, although a wounded loop of intestine was drawn up and fastened in the abdominal incision.

hospital records to a total of twenty-nine cases, with twenty-five deaths and four recoveries, a mortality of 86.2 per cent.

The details are as follows:

Cases treated by Laparotomy in New York City.

HOSPITAL.	Cases.	Deaths.	Recoveries.
Chambers Street	12	9	3
New York	1	1	..
Presbyterian	1	1	..
Bellevue	4	4	..
St. Luke's	1	1	..
Ninety-ninth Street	2	2	..
German	2	1	1
Roosevelt	3	3	..
St. Vincent	2	2	..
Dr. Jersey	1	1	..
Total	29	25	4

These I believe to be the integral statistics of this operation in the city of New York; certainly no successful cases are likely to have been overlooked. The only statistics of non-operative treatment with which I can compare them are those given above, the record of the War of the Rebellion with a mortality of about 87 per cent., and the cases which I collected from hospital records in this city. I have given my reasons for doubting the completeness of the latter list, and therefore I will select from it for comparison the records of a single hospital which I believe to be nearly, if not absolutely, exact in both classes of cases—those, namely, of the New York Hospital and its branch, the Chambers Street Hospital. The records cover the period from the latter part of 1876 to June, 1889. The cases at Chambers Street were under the care of Dr. Bull (1876-'87), myself (1888-'89), and Dr. Wilkin, assistant surgeon (1886-'89); those at the New York were under the care of Dr. Markoe, Dr. Sands, Dr. Weir, and Dr. Bull.

Cases treated without Operation, 1876-1884.

HOSPITAL.	Cases.	Deaths.	Recoveries.
Chambers Street	13	11	2 (Bull.)
New York	4	2	2 { (Sands, Markoe.)
Total	17	13	4

Mortality, 76.47 per cent.

Cases treated by Laparotomy, 1884-1889.

HOSPITAL.	Cases.	Deaths.	Recoveries.
Chambers Street	12	9	3 { Bull, 2; Stimson, 1.
New York	1	1 (Bull.)	..
Total	13	10	3

Mortality, 76.92 per cent.

(To be continued.)

The Health of Connecticut.—According to the State Board of Health's "Monthly Bulletin," the total number of deaths reported from 167 towns during the month of September was 1,040, including 3 from scarlet fever, 14 from cerebro-spinal meningitis, 54 from diphtheria and eroup, 3 from whooping-cough, 44 from typhoid fever, 16 from malarial fever, and 12 from typho-malarial fever. There were also 116 deaths from consumption, 37 from pneumonia, and 23 from bronchitis.

THE TREATMENT OF DISEASED TONSILS WHEN UNATTENDED WITH HYPERTROPHY.*

By JOHN O. ROE, M. D.,
ROCHESTER, N. Y.

It is my purpose in this short paper to call attention to some chronic diseased conditions of the tonsils not characterized by hypertrophy. Such diseased conditions have frequently proved, in my experience, to be of marked clinical importance and to demand appropriate and thorough treatment.

The group of glands between the pillars of the fauces which constitute the faucial tonsils is, as has been stated by Dr. Bosworth,† so small in size when in their normal condition as to be scarcely perceptible on ordinary inspection. The condition of moderate prominence of the tonsil that is commonly seen is not a normal condition, although the tonsils may not be so much diseased as to give rise to any particular disturbance. It is a fact, however, that the tonsils may be and very often are so extensively diseased as to give rise to well-pronounced and often serious local and general disturbances, while at the same time they retain or may be reduced to about the same size as in health, and it is to this condition that the writer wishes to direct particular attention.

This condition of the tonsils has not only not received the attention it demands, but is not even mentioned by the majority of writers on tonsillary diseases, although it has not remained entirely unrecognized.

In conjunction with "Chronic Follicular Tonsillitis," Dr. Cohen‡ recognizes the fact that the tonsils may be quite extensively diseased without being in a condition of hypertrophy, and Dr. Harrison Allen[#] has reported five cases of tonsillary disease producing well-marked and persistent symptoms in which the tonsils were small and so hidden behind projecting faucial pillars as to remain unnoticed.

A similar condition has been alluded to by Mr. Lennox Browne|| in his brief description of "Chronic Lacunar Tonsillitis," and a case is reported by him similar to those reported by Dr. Allen. Dr. Maxwell,[^] of Jacksonville, Fla., has practically recognized certain conditions of the tonsils that form the subject of this paper, but the title of his paper, "Ablation of Tonsils when Smaller than Natural," is misleading, for the reason that it presupposes or implies that tonsils are normally prominent and well-pronounced bodies.

Wagner,◇ in describing chronic catarrh of the lacunæ

* Read before the American Laryngological Association at its eleventh annual congress.

† "The Function of the Tonsils, with some Practical Suggestions in Regard to their Diseases," *Congrès périodique international des sciences médicales*, Copenhagen, "Compte-Rendu," vol. iv, p. 54.

‡ "Diseases of the Throat and Nasal Passages," 2d edition, p. 222.

[#] "The Tonsils and Follicular Irritation," "Medical News," Philadelphia, vol. xli, p. 31.

|| "The Throat and its Diseases," London, 1887, 2d edition, p. 335.

[^] "The Medical and Surgical Reporter," Philadelphia, 1889, vol. lx, p. 196.

◇ Von Ziemssen's "Cyclopædia of the Practice of Medicine," American edition, vol. vi, p. 971.

in conjunction with atrophy of the tonsils, says: "The cyst-like dilatations of the lacunæ (like comedones) have a clinical importance from the fact that their contents act irritatingly on the contiguous parts, either mechanically or chemically. In this way are produced, and usually repeatedly, the various kinds of tonsillitis, and especially intra-tonsillar and peritonsillar abscess."

It is interesting to note that for these conditions, which are capable of producing so much mischief, Wagner recommends no treatment whatever, for the reason, he says, that they are seldom detected during life. It is a traditional and a very generally accepted idea that only hypertrophied tonsils require treatment, but the fallacy of this idea will be apparent by a careful consideration of these obscure abnormal conditions of the tonsils, which so often escape observation.

The primary and most common form of disease of the tonsils is hypertrophy. In children it is rare that we find any other than the hypertrophied form of tonsillary disease; but in adults other diseased conditions of the tonsils are of frequent occurrence. It is a recognized fact that hypertrophied tonsils in children become smaller when adolescence is reached; and it is also the common belief that the subsidence of these tonsils indicates a return, not only to their normal size, but to a normal condition. But a careful examination will readily show this belief to be a fallacy; and it is not infrequently the case that these small tonsils will give quite as much annoyance to the patient as he experienced from the tonsils in their enlarged condition. It is almost invariably the case that these small but diseased tonsils in adults follow as a sequel the hypertrophic tonsils of children, and exemplify the importance of removing from the throats of children all tonsils attended by any considerable degree of hypertrophy. All chronic diseased tonsils in adults almost invariably follow a condition of hypertrophy in childhood or youth; but in exceptional cases hypertrophy may not precede the diseased conditions under consideration.

The two forms of chronic diseased tonsils which remain after the subsidence of hypertrophy, or which may exist independent of hypertrophy, are—

1. A chronic disease of the crypts and lacunæ of the tonsil.
2. A fibroid degeneration of the stroma of the tonsil or a cicatricial formation at the base of the tonsil.

The first condition is the result of chronic follicular inflammation of the tonsil, and is almost invariably associated with chronic follicular pharyngitis. The most common form of this is attended by the destructive degeneration of hypertrophied tonsils in children, and is distinctly a diseased condition of the follicles of the tonsils. This slow but progressive destruction of the follicles of the tonsils is the exciting cause of the frequent attacks of suppurative inflammation, which often attends this condition, and which is easily induced by slight exposures or deranged condition of the system. These degenerate tonsils often have the appearance of being hypertrophied when the crypts and lacunæ are filled with the *débris* of the degeneration, which frequently has a very offensive odor and causes the person to have a very bad-smelling breath.

It is not uncommon to find the surface of diseased tonsils studded with white spots which mark the openings of the lacunæ. These white spots are caused by the material discharged from the crypts and lacunæ of the tonsils and is the chronic inflammatory exudate resulting from the disease of the tonsil. On squeezing this out, it will be found to be of a soft, cheesy consistence, to resemble very much the contents of comedones, and to have an offensive odor, which may be more fully brought out by crushing it. It is usually the case that much deposit of this material is associated with more or less hypertrophy of the stroma of the tonsil, for when the stroma and follicles have undergone further degeneration, this substance is poured out in a fluid form.

The second condition is also the result of the follicular disease, except that, simultaneously with the degeneration of the lymph follicles, there is a deposit of fibrous material in the stroma. The cicatricial formation at the base of the tonsils is the result of the frequent attacks of suppuration around the base of the tonsils which is induced by the follicular disease.

The reason for these conditions being so frequently overlooked is that they usually give rise to little or no discomfort to the patient which he refers to the tonsils themselves; because the disturbances to which they do give rise are usually located in other parts, and are of a reflex character. Another reason for their being so readily overlooked is that, on examining the throat, the diseased condition of the tonsil generally looked for is hypertrophy. This being absent, the real disease of the tonsil remains unsuspected.

The chronic disease of the interior of the tonsil, even when it is attended with considerable discharge, is frequently undetected for the reason that the discharge is so readily cleared away by swallowing or drinking. In other cases the tonsil may be partially or completely hidden behind large and projecting faucial pillars. In the latter case the free exit of the tonsillar discharge may be prevented by the overlapping pillars, thereby causing a distension and dilatation of the crypts and a bulging of the pillars over the tonsils.

In these cases the anterior pillars should be drawn forward with a blunt hook. For this purpose an aneurysm needle or a plain palate retractor is very conveniently adopted. The act of gagging also assists materially in the examination by throwing the tonsils inward and forward, thus exposing them completely to view.

In all cases of obscure disease of the throat the tonsils should be carefully examined. The enlarged crypts and lacunæ may be explored with a probe for enlarged pouches which are so often filled with muco-purulent discharge; and this discharge can be readily demonstrated by simply squeezing it out with the finger. The formation in the tonsil and around its base of cicatricial tissue, which is very often the exciting cause of throat irritation, can also be readily detected with the probe and finger, and can usually be suspected by simply a careful inspection.

The local irritation produced by the diseased condition above described is manifested in a variety of disturbances about the throat and head. The association of this diseased

condition with follicular inflammation of the pharynx renders a removal of the abnormal condition of the tonsils a necessity, before the latter can be cured. Also, disease of the faucial tonsils is frequently the exciting cause of diseased conditions of the other so-called tonsils—the lingual and the pharyngeal tonsils.

It is also frequently manifested in irritation of the larynx and hoarseness; and it is not infrequent that cicatricial formations in and about the tonsils will produce neuralgia of the face, neck, and more or less frequent or persistent neuralgic affections of the ear.

The necessity of treatment of these diseases is therefore evident, not only from the existence of the disease itself, but from the liability of its becoming aggravated by the slightest causes, and also from the accompanying disturbances which it almost invariably produces. The method of treatment in these cases is always local, except in those conditions of the tonsil that depend upon specific disease, or those conditions of chronic inflammation of the circumcellular tissue of the tonsil that accompany rheumatic conditions.

Local applications of medicinal substances in these conditions of the tonsils are practically useless. The application of caustics, such as the Vienna or London paste, may be used in the first form of the disease described, in which the tonsil itself is soft and flabby. In the case of the fibrous or cicatricial formations, the efficacy of the paste is not so great, as the tissue is not readily destroyed by it. The galvanic cautery, which is sometimes employed for the removal of hypertrophied tonsils, may also be employed in these cases. It is, however, far more efficacious in the treatment of disease of the lacunæ and crypts, for the reason that the application of the galvanic cautery tends further to increase the formation of cicatricial tissue.

The treatment *par excellence* in all cases is that of ablation with the knife. In the case of diseased crypts, they may be laid open with a bistoury, and the interior of the crypt thoroughly cauterized with chromic acid or a solid stick of nitrate of silver, or the silver fused on a platinum probe, as proposed by Dr. Cohen. The best plan, however, in these cases is, according to my experience, that of excision. In such case, however, the amygdalotome can not be employed. The method of removing these tonsils is simply to grasp the tonsil with a double tenaculum, draw it forward from its bed, and remove a portion at a time. It is rarely advisable to attempt to remove the whole mass at one cut, for these tonsils are so often attached to the pillars of the fauces that wounding the pillars is liable to take place if care is not exercised. The plan which I adopt in these cases is, first, to anæsthetize the parts as thoroughly as possible with cocaine. This has a double advantage, in that it not only renders the operation less painful, but decreases the liability to hæmorrhage. Then with a double tenaculum and a curved blunt-pointed tonsil-knife to remove small portions of the tonsil until all the diseased mass is thoroughly extirpated, usually leaving a deep excavation between the pillars of the fauces. In the case of a cicatricial formation, it should be removed as thoroughly as practicable. In some cases of chronic disease of the crypts of the tonsils it is advisable to remove the outer portion of the tonsil com-

pletely, thus exposing the interior of the crypt, which can be cauterized thoroughly.

In all cases, however, the complete extirpation of the gland when possible is far preferable to any other form of treatment, as nothing but a surface of healthy tissue is left, which heals quickly and permanently. In no instance has the writer observed any troublesome hæmorrhage in these operations. This is doubtless due to the fact that in these cases the nutrient vessels going to the tonsils are small or are not so distended as they are when the tonsils are in a condition of hypertrophy.

A large number of cases illustrating the foregoing observations could be cited, but, as the recital of cases is tedious, I will simply state that in every instance excision of these small but diseased tonsils has resulted in a complete cure of the tonsillary disease, and entire relief from all the attendant symptoms of local disturbance and reflected irritation.

POISONING BY ILLUMINATING GAS.

HISTORY OF A CASE.

RAPID RECOVERY. A RATIONAL TREATMENT.

BY WILLIAM C. KLOMAN, M. D.,
BALTIMORE.

MODERN illuminating gas, the so-called "water gas," is a much more dangerous poison to the human system than the original gas made from coal. Booth ("Encyclopædia of Chemistry") states that illuminating gas made from coal consists, on an average, of light carbureted hydrogen, 57.7; carbonic oxide, 7.7; hydrogen, 21.2, etc., while the modern gas, on the authority of Professor P. B. Wilson, inspector of gas, etc., contains from 20 to 30 per cent. of carbonic oxide, showing an increase of from 300 to 400 per cent. Now, there is every reason to believe that the carbonic oxide is the actual poisonous constituent of illuminating gas.

The practical difference in the poisonous qualities of the two kinds of illuminating gases is best illustrated by the tables of mortality of our Board of Health, which state that prior to January 1, 1881, when the original gas was made from coal, there was but one death from poisoning by this gas during the previous fifty years, while since that period, to October 1, 1889, there have been recorded fifty-one deaths from poisoning by illuminating gas.

The actual nature of poisoning by carbonic oxide is yet a mooted question. Some authorities, such as Claude Bernard, Hoppe-Seyler, and others, believe the symptoms are entirely due to merely a deprivation of oxygen; others, such as Klebs, believe that carbonic oxide has narcotic properties acting on the central nervous system, independent of its power of robbing the blood of oxygen. At any rate, it is established that carbonic oxide has the power of decomposing the oxyhæmoglobin and forming a new compound with the hæmoglobin, combining in the same volumetric proportions and forming a new compound which is crystallizable and which can be separated from the blood. This new compound is more stable than oxyhæmoglobin, and is not decomposed by the presence of oxygen. In fact, to the extent of its presence in the blood, it seems to render the

absorption of oxygen impossible, and if the entire quantity of oxyhæmoglobin of the blood is replaced by it, life is no longer possible.

Having recently treated a case of poisoning by this gas, and having successfully treated it by a remedy not heretofore mentioned in connection with the treatment, I have thought it best to introduce the history of the case with the foregoing short *résumé* of the nature of illuminating gas and its effects upon the system.

On September 4, 1889, I was called at 6.30 A. M. to see Diana, a colored girl aged seventeen years, a domestic in the family of Mr. S. She had recently come to the city from Virginia, and was not familiar with the use of gas. She was shown how to turn off the stop-cock and extinguish the flame. She went to bed at about 10 P. M., and was found insensible in her bed at 5 A. M., or soon after. The room-door and window were both closed and the atmosphere filled with the smell of escaping gas. The stop-cock was found partially turned off. Before my arrival she was moved to the adjoining bath-room, where the window was open. I found her lying upon the floor; her limbs were cold and relaxed; I could feel no pulse at the wrist; there was no sign of life except respiration, which was shallow and stertorous. The eyes were partly open, staring and fixed; the conjunctivæ were intensely congested; the pupils moderately dilated and insensible to light; the eyes were also insensible to touch. She was in a profound coma. I at once dissolved one of Sharp & Dohme's hypodermic tablets of nitroglycerin, one fiftieth of a grain, in my hypodermic syringe, and injected the solution into the upper arm. Her body was directed to be covered with blankets. In about two minutes I could feel pulsation at the wrist, and in five minutes her pulse was full and strong. *Pari passu*, the respiratory movement deepened and her limbs began to grow warm. In about fifteen minutes, while yet unconscious, she showed signs of vomiting; I turned her on her side, and she vomited some mucus and partly digested food containing some pieces of tomato. Soon after this she became partly conscious, and, reaction being thoroughly established, I wrote a prescription for æther. sulph., $\frac{3}{4}$ ss.; elix. ammon. valer., $\frac{3}{4}$ jss., and directed that during my absence a teaspoonful diluted with water be administered every second hour. I returned to see her in about three hours, when, to my surprise, Diana walked into the parlor. She told me she was all right except for a slight headache. She also said that she had been constipated for several days, for which I ordered her a purgative. Beyond this she had no medication. Her headache continued for two or three days, but did not interfere with the performance of her duties.

A noteworthy point in this history is the length of time during which the patient was exposed to the inhalation of the gas—a period of not less than seven hours. I was doubtful of this until her recovery, when I questioned her, but found that she recollected nothing from the time she went to bed until she regained consciousness in the morning. It is not possible for me to state how much percentage of gas was in the atmosphere she breathed during the night, for the stop-cock was entirely turned off at once and the door and window of the room were opened before I came. In this connection, however, we must remember that there is a great difference in the susceptibility of different persons to its poisonous influence. Yet, whatever the amount of gas respired, it was evidently enough to render her deeply comatose and very nearly deprive her of life.

I have never heard or read of nitroglycerin being administered for poisoning by illuminating gas, and was moved to do so by the condition of the patient, which presented a profound depression of all the vital functions. I certainly expected to see her powers rally under the influence of this powerful stimulant, yet thought that several days would elapse before her system would throw off the effects of the poison sufficiently to enable her to be convalescent and return to her duties.

I have no explanation to give of the action of the remedy beyond its stimulant qualities, in which I have reason to have the utmost confidence. I regard it as the most powerful stimulant known. In the case under consideration hours would in all probability have elapsed before her system would have rallied under ordinary treatment, if she had rallied at all, since she was entirely unconscious and could not swallow.

I have found nitroglycerin to be an invaluable remedy in all conditions approximating the one found in this case; in traumatic and surgical shock, in the dyspnoea of asthma, and whenever there is great depression of the vital powers it will prove a prompt and reliable stand-by.

I constantly carry the remedy in my hypodermic case in the form of Sharp & Dohme's tablets, which I find to be more soluble than those of any other make which I have tried.

1519 JOHN STREET.

A CASE OF EMPYEMA.*

By H. B. SWARTWOUT, M. D.,
PORT JERVIS, N. Y.

JOSEPH M., aged twenty, small in stature, was treated through the month of March, 1889, for pneumonia. His disease pursuing an unfavorable course, he changed to another physician, who attended him for about a week. He then fell victim to a so-called "Christian scientist," who prayed over him faithfully for some eight weeks, or until June 7th, when I was called to see him. I found him sitting up in bed, cyanosed, with a pulse 130 and feeble, breathing sixty times a minute, and afraid to lie down for fear of suffocation. On removing the shirt, the cause that was producing this alarming condition was fully pictured. The left side was enlarged and extensively cedematous, and in each intercostal space in the axillary line distinct fluctuation was present. The patient was greatly emaciated, and during the preceding four weeks had remained in bed, lying constantly on the left side. He was unable to get up even to attend to the calls of nature.

I introduced a large trocar and cannula in the eighth intercostal space and drew off some three quarts or more of pus; the patient standing that well, the cannula was withdrawn and a curved bistoury inserted, making a free opening, removing a still greater quantity, making in all five quarts. I inserted a rubber drainage-tube and applied oakum dressing. The patient's condition was immediately improved, the cyanosis disappeared, and the respiration dropped to 35 and the pulse to 100.

There were no antiseptics used for the first four days after the operation; then, on account of the high fever and the septic condition of the wound, the cavity was thoroughly irrigated

with a one-per-cent. carbolic-acid solution. The effect of the antiseptic washing, which was repeated every afternoon, was seen immediately. The bad-smelling wound soon assumed an aseptic condition, the temperature fell almost at once and within a week was normal, and has thus remained. The internal treatment was with brandy, quinine, and Phillips's emulsion of cod-liver oil. The use of brandy was discontinued after the first week.

In a week after the operation the patient was able to sit up, in two weeks went out of doors, and on the sixteenth day took a drive of a mile—in fact, his recovery from the date of the removal of the pus was one continuous steady improvement. On June 25th, eighteen days after the operation, the patient complained of passing water too frequently and of a small amount at a time. He had no other unfavorable symptom. I secured a specimen of the urine, and on examination found it pale, dirty yellow, of a specific gravity of 1.020, with albumin in slight amount, of a sickish sweet smell, and emitting on heating a decided carbolic odor. The microscope showed granular renal epithelium, minute oil-globules, and granular and hyaline casts, the latter not being perfectly clear, but interspersed with broken-down granular epithelium. Thinking possibly that this condition of the kidneys was brought about or aggravated by slow carbolic-acid poisoning, I discontinued the acid washings and substituted warm water. Within the next two weeks the kidneys gradually improved without any medication, so that there was no albumin, and, with the exception of an occasional cast, the urine seemed normal in every respect. Hence a still further reason for thinking that this condition of the kidneys was the result of slow carbolic-acid poisoning.

July 5th.—Twenty-eight days after operating. For a few days previous to this date the lung expanded rapidly and filled nearly the entire cavity. The only portion remaining vacant was a cavity about three inches in diameter on the anterior side of the chest, extending upward from the opening toward the nipple and bordering on the heart. The diaphragm also ascended and pressed against the tube, so that the tube was with difficulty kept in place, making irrigation next to impossible. This was the last time irrigation was practiced. The tube was gradually removed and the opening allowed to close.

The cavity on the anterior portion was mapped out by the amphoric sound, which was very distinct, and by tympanites on percussion, and was either in the lung substance or circumscribed pneumothorax with a perforation of the lung entering it. My opinion is that it was the latter. At present the amphoric respiration is heard only with the patient in the recumbent posture, a modified vesicular respiration being now discernible over the same portion when the patient is sitting up.

The pulse varies from 80 beats to the minute to 130. I hardly know how to account for this wide difference. In apparently the same condition this difference is noticed, and at times when he appears at his best the pulse is 130. His general condition, while not the best, was not sufficiently weak to cause this variation. It seems to me that the pneumothorax bordering on the heart in some way affects its action, as possibly the cavity does not at all times have the same atmospheric pressure.

Other Points of Interest in the Case.—The long standing and extreme gravity of the case when first seen, with favorable recovery. Never hesitate to remove the pus, no matter how alarming the condition. The point of opening is quite important. Had the rule been followed in this case and the opening made in the sixth or seventh interspace instead of the eighth, it would not have been so difficult to irrigate toward the last.

* Read before the Fifth District Branch of the New York State Medical Association at its seventh special meeting, Port Jervis, August 27, 1889.

Washing out the pleural cavity is a very simple procedure, yet in this subject attacks of spasmodic coughing at times made the outlook quite serious, and the loose false membrane materially interfered. On washing out this patient with carbolic-acid solution, the acid was immediately tasted by him in the expired air and in the mucus raised from the lung. This is not always the case, and may have some bearing on his susceptibility to poisoning. The numerous changes which the chest undergoes, and the amount of the inflammatory exudate, make a physical diagnosis very unsatisfactory. It is difficult to tell exactly what progress the case is making, and just when to discontinue irrigation and to close the opening.

This case illustrates the general rule, where the walls of the cavity are rigid and the lung bound down by fibrous bands and old adhesion; at the third or fourth week they undergo fatty granular degeneration and disappear, allowing the lung to expand and fill the cavity.

In regard to "Christian scientists." Their ways and modes of deception are no doubt familiar to you all and need not be related here. Yet to see how such views are accepted by intelligent people is beyond comprehension. In a case of this kind, or in any case for that matter, it ought to be considered criminal for them to interfere, and it seems the duty of the medical profession, and especially of the State societies, to see that laws are enacted that would exterminate them as a class from inflicting their nonsense upon the human race.

CHRONIC ULCERS OF THE LEG.

By A. F. E. KROG, M. D.

If there be any part of the human body that seems to have any more inclination or a greater predisposition to any form of chronic ulceration than another it is undoubtedly the leg. In consequence of its anatomical relation, being farthest distant from the heart, its circulation of blood is slower and less forcible. The weight and quantity of venous blood to be propelled and returned to the heart are in themselves quite an impediment to be overcome; the erect and vertical posture, the activity of muscles in walking, and the close adherence of the skin to the tibia, add to its retardation. Consequently, all the conditions for a venous hyperæmia of the leg are given. Slight causes result in swelling and œdema, and more especially in a varicose condition of the vessels. Thus it is not difficult to understand that such slight accidents or injuries as the opening of an eczematous pustule or furuncle, or the scratching and rubbing of the itching surface of the eczematous or hyperæmic and œdematous skin, should result in a chronic ulcer of the leg. Very frequently it is caused by spontaneous inflammation of a varicose vein, a phlebitis in consequence of a thrombus, maceration of the skin as the result of perspiration, or irritations due to improper stockings, boots, shoes, or garters.

Whatever the causes, we shall find that the epidermis forms a crust and the surrounding tissue is tense. Taking off this necrotic tissue, we find underneath a circumscribed deficiency—the ulcer. Its form may be either

round or elliptic, but almost always it becomes irregularly circular. Its borders are generally devoid of all reaction and sensation, but sometimes very hyperæsthetic; they are flat or undermined, deep, rounded, as if rolled upon themselves. The callosity is specially peculiar to the chronic ulcer of the leg. The floor of the ulcer is filled with its necrotic contents, with a smeary mass of a white, yellow, or dirty-gray appearance, sometimes with fungous granulations, which have a tendency to bleed easily. The secretion is confined to very little pus. The surroundings of the ulcer are, as a rule, hard, callous, indurated, and œdematous; the immediate vicinity is red, varicose, and at times pigmented. The chronic ulcer of the leg has no tendency to heal of itself, but, on the contrary, has a tendency to spread irregularly. It may be of the size of a silver dollar or a hand, or even take in the entire circumference of the leg. The skin, the underlying muscles, and the periosteum are changed into a thick and hard mass. New bone is formed; periostitis and ossification between the tibia and fibula take place; thickening and ossification of the capsules of the ankles, and hence ankylosis. Furthermore, hypertrophy of the papillæ takes place, the skin becomes œdematous, the epidermis horny, hard, dry, and devoid of all natural secretions, and consequently the leg takes on the appearance of "elephantiasis."

The continuance of such ulcer not alone gives rise to erysipelas, lymphangitis, or septic poisoning, but also acts detrimentally by giving rise to hectic fevers, amyloid degeneration, marasmus, and carcinoma (Broca, Meissner, H. Fischer, Eulenburg). It is for these reasons that all the care possible should be bestowed upon them, in order to effect a prompt and speedy cure.

In the treatment of these ulcers it is pre-eminently necessary to obviate and relieve the lower extremity of its venous congestion; therefore the leg is to be placed in a horizontal or, better, in an elevated position, to allow of perfect freedom and better return of its circulation; this latter can also be assisted by means of bandages, preferably elastic. The callosity is removed with warm and moist applications, or baths containing soda, in order to obtain a healthy appearance of the ulcer. The wound itself is dressed with iodoform, absorbent cotton, and an elastic bandage. If the ulcer has no tendency to heal, I have applied—after cleansing—tincture of iodine with very good result, also chloride of zinc 1 : 1, and nitrate of silver.

Fowler, of Brooklyn ("Medical Record," July 2, 1887), recommends a solution of hydrarg. biniod., 1 to 4,000, for disinfection, and a paste of zinc oxid. and hot water in order to remove the callosity. Antonio Grossich ("Gazzetta med. italiana lombard.," No. 44) recommends an application of a ten-per-cent. solution of acid. phosphor. as having an excellent effect toward healing these ulcers.

In case, though, the callosity is so great that the acids or other applications applied would have no effect or might produce destruction of the neighboring parts, it will be found necessary to cut the margins of the ulcer by means of knife or scissors, and then to destroy the granulations with the thermo-cautery or eurette. The resulting wound is dressed as has already been mentioned.

Through whatever means we may have succeeded in bringing about a clean wound with healthy granulations, our next object must be to produce a covering, for the skin has as little tendency as possible toward cicatrization. To this end transplantation is best resorted to.

Jacques Reverdin was the first to attempt this, in 1869, at the Hôpital Necker in Paris. The skin to be used for the purpose can be taken either from the same individual or another, or from an amputated extremity, even six hours after it has been severed from the body. By means of Cooper's scissors minute pieces of skin are cut off, containing nothing but the rete Malpighii and papillæ. The success depends entirely on taking no subcutaneous tissue and on the avoidance of bleeding. These particles are then placed upon the ulcer. The plastic lymph and secretion are sufficient to "fix" and keep them in position. The whole is then dressed as mentioned above. These little islands of skin form the center of new skin formation; thus hundreds may be implanted. The cicatrix thus formed is smooth, strong, and permanent. By means of this method contractions are warded off, which otherwise would hinder and impede the functions of the leg.

Amputation of the diseased limb, as the *ultimum refugium*, will be necessary in case of long continuous discharge, marasmus, immobility, pain, nephritis, amyloid degeneration, and the like.

Correspondence.

LETTER FROM LONDON.

The Medical Session.—The British Medical Association.—The New Lunacy Act.—Work at the Medical Societies.

LONDON, October 12, 1889.

THE commencement of another medical session has come and gone with its usual accompaniment of introductory addresses and annual dinners of old students. The latter form of entertainment is very naturally highly popular, but I can not say as much for the former. The addresses themselves seem to have been singularly unproductive, and I look forward to the, I hope not far distant, time when they as well as systematic lectures will be swept away with the advance of civilization. One of the lecturers, Mr. Godlee, at University College did not hesitate to say that he thought they might be given up with advantage, and one circumstance which will, I think, materially contribute to bring about this result is the increasing tendency of students to begin work in the summer. It is a practice which has been openly encouraged by the school authorities only within the last year or two, and it seems by no means impossible that in another ten years May will have taken the place of October as the birthtime of the medical student. It is too early yet to have official information as to the entries this year, but I have heard privately that at St. Bartholomew's, Guy's, St. George's, and Charing Cross the numbers are considered very good; of the other schools at present I know nothing.

There has been singularly little doing in the world of medical politics. August and September are always very slack months; the leaders are away and the small fry are too busy in their absence trying to pick up the crumbs they may have left behind. The annual meeting of the British Medical Association generally supplies some material for gossip. This year the

meeting took place at Leeds, when it was expected that something of the nature of a row would take place, as it was known that a memorial objecting to the conduct of the "British Medical Journal" in one respect had been signed by about a thousand prominent members in London. The Council of the association treated the memorialists with a very high hand, and when the subject was brought up at the general meeting in the report of the Council none of the party in opposition were present to fight their cause, the result being an almost unanimous vote in support of the action taken by the Council. The memorialists are now, according to their own statement, bound to secede from the association, but I have not heard yet that they have done so. This little disturbance has had one unfortunate effect, viz.: it has prevented the next meeting from being held in London, as was at one time contemplated, and up to the present time no decision has been arrived at as to where next year's meeting shall be held.

The Lunacy Laws have received important modifications in the Act passed last session, which will come into force next May. The most important of the changes is perhaps the requiring that in the case of a private, *i. e.*, a non-panper, lunatic, the order for his reception must be signed by a magistrate, such magistrate being specially appointed for the district, so that it will not do to rush off for the nearest magistrate, but the particular officer appointed must be found and his sanction obtained. There is no proposal, however, as was, I believe, at one time contemplated, that he should see the patient. In case of emergency the patient may be placed under control on one medical certificate as heretofore, but the detention order must be obtained from the magistrate subsequently. A most inconvenient proviso has been added giving the patient the right of insisting upon being seen by some other magistrate or judge after his admission. A report must be made by the asylum superintendent within a month of the patient's admission, and the reception order only remains in force for a year, but at the end of that time may be renewed for two years and after that for three years, and subsequently it must be renewed every five years, and as each time for renewing the certificate comes round the superintendent of the asylum must make out a special report as to the mental and bodily condition of the patient and send it in to the Commissioners, so that the amount of additional work placed on the superintendent of a large asylum will be very great. Another novelty is that a person may voluntarily enter a lunatic asylum as a boarder, and may leave the asylum at any time by giving twenty-four hours' notice. Henceforth, therefore, it will not be necessary for the enterprising young men who represent a certain class of periodical literature to feign madness to get within the sacred precincts of an asylum, so as to be able subsequently to describe to a gullible public the imaginary horrors they have become acquainted with.

The work of our chief societies will be somewhat delayed this session, for the new premises of the Medico-chirurgical Society are very far from ready, while the old ones have been given up, so that at present the four leading societies are without a meeting room. The Ophthalmological Society will get to work next week under the guidance of a new president, Dr. Hinghings Jackson, who is the first physician to hold the office, but he has been closely identified with the society since its foundation, nine years ago, and it was therefore only natural that he should be invited to become its chief officer.

"Typhoid fever," says the "Medical and Surgical Reporter," is epidemic at Aurora, W. Va., and it is said the country for miles around is infected. It is said that there is scarcely a family without one or more of its members prostrated with the disease, and in some localities there are scarcely enough well persons to nurse the sick."

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THE PREVENTION OF RABIES BY PASTEUR'S TREATMENT

IN order to secure a discussion on the advantage of recommending persons bitten by rabid animals to submit to Pasteur's inoculations of rabietic virus, the chairman of the Section in Medicine, at the recent meeting of the British Medical Association, requested M. Pasteur to designate some one to present his views. Dr. A. Ruffer, being selected, read a paper on the subject in which he reviewed the genesis of Pasteur's discovery, referring to the existence of twenty antirabietic institutes in various parts of the world as attesting their value. Dr. Ruffer believed that the virus was probably a micro-organism, propagated by inoculation, easily destroyed by sunlight, heat, or drying—a temperature of 50° to 60° C. for an hour, of 45° C. for twenty-four hours, or of 62° C. for four minutes, completely destroying its virulent properties, while low temperatures (30° C.) did not affect it. Inoculations of virus from the central nervous system of an animal dead of rabies, under the dura mater of an animal, was the only absolutely certain means of reproducing it, though it had been produced by inoculations of blood, of urine, of the liver, of the kidneys, of the spleen, and of the salivary glands. The recorded incubation period in man varied from thirteen days to eighteen months after the inoculation, the average being within two months.

After injecting an emulsion of the medulla oblongata of rabid animals under the dura mater of rabbits, symptoms of rabies appear in from nine to fifteen days. Successive inoculations from one rabbit to another reduce the incubation period to six or seven days, the animal invariably dying of rabies on the tenth day. If the spinal cord of a rabbit that has died of rabies is suspended in a sterilized bottle, the air of which is dried by a piece of caustic potash in the bottom, and the bottle is kept at a temperature of 25° C., inoculations of a healthy rabbit with an emulsion of the cord after one day's drying will cause rabies, but the animal dies one or two days later than when fresh virus is employed. Each day that the cord is kept in the sterilized bottle decreases its virulence; careful and extensive experiments by Dr. G. B. Uffreduzzi show that eleven days' drying postpones death until from the twentieth to the twenty-fifth day, and after twelve days' drying the cord is harmless.

Dr. Ruffer calls attention to the fact that injections of the emulsion of the spinal cord of rabid animals introduce not only the micro-organism of rabies, but the ptomaine produced by it. If an emulsion of the spinal cord of a rabid rabbit, after fourteen and thirteen days' drying, is injected under a man's skin, there is probably introduced a large quantity of ptomaine in proportion to the small number of micro-organisms.

If on the second day an inoculation is made of an emulsion of a cord dried for thirteen days, and on the third day one of an emulsion of a cord dried for twelve days, each succeeding day a cord dried for a shorter period being inoculated, there will be introduced on successive days a decreasing amount of ptomaine and an increasing number of micro-organisms. This is the method adopted by Pasteur in treating men bitten by rabid animals, except that in bites on the face, on account of their greater severity, an intenser form of inoculation is employed—on the first day matter from cords dried for fourteen, thirteen, twelve, and eleven days is injected; on the second day, from cords dried for ten, nine, eight, and seven days; on the third day, from a cord dried for six days; on the fourth and fifth days, from a cord dried for five days; on the sixth, from a cord dried for four days; on the seventh, from a cord dried for three days; and on the succeeding days, matter from cords dried for longer periods is again employed. Each injection consists of about half a cubic centimetre of spinal cord crushed in two cubic centimetres of sterilized beef-tea. The cord is tested for the bacteria of putrefaction by placing a piece in sterilized beef-broth for twenty-four hours, at a temperature of 38° C. No bad results follow the injection of this fluid under the skin of healthy men.

The author believes that the mortality from bites of rabid animals is probably placed too high by the statistics (twenty to fifty per cent.), the cases of many who recover without treatment not being included; fifteen per cent. is a fair average. In wolf bites, however, the mortality varies from sixty to sixty-four per cent. At the Pasteur Institute careful inquiries are made as to whether the animal was rabid or not; whenever it is possible, the animal's head is obtained and inoculations are made from an emulsion of the brain. Where this is not possible, a certificate from a veterinary surgeon that has seen the animal is obtained, and inquiries are made as to whether other persons were bitten or not. The patients are divided into three classes: those known to have been bitten by rabid animals, as demonstrated by inoculation experiments; those bitten by animals certified as rabid by a veterinary surgeon; and those bitten by animals suspected to be rabid. If these statistics are compared with those obtained by preventive inoculation, a telling argument will be found in favor of the latter.

Bujwid, at Warsaw, inoculated 370 persons bitten by animals undoubtedly rabid, and not a death occurred in the series. Up to July 29th of this year he had inoculated 146 bitten persons, and only one death from rabies had occurred among them. At St. Petersburg 484 persons bitten by rabid animals were inoculated from July, 1886, to September, 1888, and the mortality from the disease was only 2.68 per cent. At Odessa, in 1888, in 364 persons inoculated the mortality was only 0.64 per cent. At Moscow, in 1888, in 431 inoculated persons the mortality was only 3.46 per cent. At Turin the mortality was 1.88 per cent. in 531 inoculated persons. At Lisbon the mortality was 0.59 per cent. in 355 persons. At Palermo 343 persons were inoculated, with a mortality of 1.37 per cent. At Naples 347 persons were inoculated, with a mortality of 1.72

per cent. At Constantinople no deaths occurred among 34 inoculated persons. At Havana the mortality was 0.60 per cent. in 170 inoculated persons. During the past year the mortality in M. Pasteur's Institute was 1.16 per cent. As the inoculations have never caused death, it seems but justice to a person bitten by a rabid animal that the attending physician should employ, or recommend the employment of, Pasteur's system of inoculation. This opinion was expressed by those participating in the discussion.

THE CLIMATOLOGY OF CANCER.

THE "Lancet" for September 14th contains an article on "The Infrequency of Cancer among Females in the English Lake District," by Mr. Alfred Haviland. The article is supplementary to some remarks published last year by the same author, and is an important addition to the literature of medical climatology. Mr. Haviland has been engaged upon investigations into the geographical distribution of disease for a number of years. The conclusions he first drew were that those low-lying districts which were traversed by, or contiguous to, fully formed rivers that periodically flooded the country through which they flowed were characterized by the highest mortality from cancer. On the other hand, those districts which showed the lowest mortality had a high average level with free access of the prevailing wind, and were situated on or near the water-partings, where rivers derived their sources and where the rock base under them consisted of the older geological formations.

Subsequent investigation showed remarkable exceptions to the foregoing conclusions. It was found that in certain frequently flooded river valleys death from cancer in women was comparatively rare. The author found in these locations, coincident with low mortality, that limestone or chalk formed the rock base of the surface soil. Underlying the gravel and alluvium of the high-mortality riparial districts there were the different varieties of clay, all retentive strata, calculated to intensify the evils of floods and their sequels—dead vegetation and vegetable decomposition—and resulting in the formation of numerous gases and acids. This not only rendered the soil sour, but injuriously affected the atmosphere above it, and therefore the local climate where floods occurred. Grasses and other vegetation covering the soil overlying chalk or limestone, even when covered to a considerable depth by sand and gravel, remained sweet. The vegetable acids, the result of decomposition, were neutralized by the chalk.

The author's deductions were that the physiological configuration and the geological structure of a district greatly influenced the local climate, and that the chemical properties of the soil were answerable for a larger percentage of the mortality from cancer than had been generally supposed. In the English lake districts conditions of soil and local climate had been found to exist least conducive to the growth of cancer, and most favorable to the lowest mortality from the disease. Mr. Haviland found that the distribution of phthisis throughout Great Britain was decidedly the reverse of that of cancer.

The highest mortality districts in one map were, as a rule, represented by low mortality in the other, and where low mortalities from these two causes of death were coincident the districts were found to be the most salubrious, as indicated by their death-rates from "all causes."

MINOR PARAGRAPHS.

THE ANTISEPTIC METHOD AMONG THE ANCIENTS.

ACCORDING to the "Wiener klinische Wochenschrift," Dr. A. Anagnostakis, of Athens, has recently published a brochure on this subject that is a valuable contribution to the history of surgery. He furnishes indisputable proof that antiseptics was, for more than two thousand years, the common practice of surgeons. It was practiced with all the forms and rigor of a perfected method, and Hippocrates was its originator. The work is divided into several sections, containing the Hippocratic precepts that have full force to-day: 1. Cleanliness in treating wounds is a precept that Hippocrates can not often enough repeat; again and again he emphasizes the necessity of the cleanliness of dressings, of the hands, etc. The ancient surgeons employed warm sterilized water (boiled rain-water) for dressing wounds. 2. The antiseptics of the ancients was founded on theoretical principles. Hippocrates taught that suppuration came from putrefaction. For example, he said: "A wound must be made clean and dry, so that it does not remain moist too long, or it will swell and become spongy; this, it is to be feared, causes putrefaction." "In a word, where the moist wound surface threatens to putrefy, suppuration is prevented by drying substances." Among the surgical appliances of the ancients were the exsiccative substances; all drying media were those that had long been used in embalming cadavers and preserving breadstuffs. 3. Alcohol, in the form of wine, was given for its direct effect in catarrhs. Sea salt in solution and powder was esteemed an excellent local remedy for the bite of a mad dog. Fine powdered salt was strewn on a serious wound during an operation. For the ligature of vessels, aseptic prepared silk and fine catgut were employed. Wounds were covered with poplar-tar. As we use corrosive sublimate to-day, so the ancients employed sulphate of copper; the copper compounds were almost exclusively employed in the treatment of wounds. 4. The antiseptic treatment of wounds by the ancients had the explicit aim of preventing putrefaction by hindering suppuration. To stop hæmorrhage, the wound was covered with warm wine or salt solution, and then cleansed with linen: the surface was then treated with a copper solution or a preparation of tar, and the wound finally closed with sutures. Over the surface antiseptic substances (copper compounds, rosin, etc.) were sprinkled; then a tar plaster or a compress saturated with wine or asphalt was applied. The vicinity was made air-proof by spreading cerate over it; finally, a compress wet with wine was applied, and thus a clean dressing was secured.

CONGENITAL SEXUAL PERVERSION CURED BY HYPNOTISM.

PROFESSOR VON KRAFFT-EBING has recently added another to his important studies in hypnotism. The article is published in the "Internationales Centralblatt für die Physiologie und Pathologie der Harn- und Sexual-Organen," and we find an abstract of it in the "Deutsche Medizinal-Zeitung." A young man of thirty-four years, a doctor of philosophy, of unusually high education, with a special love for the fine arts, and physically the peer of any man, made application to von Krafft-Ebing for treatment by hypnotic suggestion. He hoped in this way to be

relieved of a perverted sexual impulse toward his own sex. Women had no attraction for him, and, although he was engaged to be married, he feared he should never be potent in his connubial relations. There was some hereditary taint in his family. While, however, erections were easily excited by the presence of members of his own sex, he never had the desire to have carnal relations with them. It was an impulse only, but without the imperative idea of acting upon it. He was hypnotized according to the Bernheim method and repeated the following suggestion after the operator: "I feel that from now on I am sexually indifferent to men, that men are to me sexually no more than women." Five days later he reappeared, joyously stating that he had been freed from his disorder and felt a new desire for life. For a week following he was hypnotized daily, and made to repeat the same formula. He was then pronounced well. No attempt was made to inculcate the normal desire for the opposite sex into his mind. Doubtless the professor thought he would be better off without it.

A DEALER IN FRAUDULENT DIPLOMAS.

THE arrest of "Dr." Henry Freeland, the alleged head of seven bogus medical colleges, took place in Maine on the 2d inst. He is to be tried at Portsmouth, N. H. It is not known how long this diploma-mill had been working before its exposure was published in one of the Boston papers, but one of the fraudulent diplomas is known to have been issued early in 1888. The buyers of diplomas were charged from fifty to three hundred dollars. It is a partial compensation to note that these frauds are brought to book more speedily than was formerly the case; but even now the punishment that will be visited upon this dealer in diplomas—if he is punished—will be only that for an illegal use of the mail, rather than for a crime against his dupes or the public at large. In other words, the General Government must be invited to intervene and prosecute the accused for an act which is not, or might not be, essential to the carrying on of an extensive business in fraudulent credentials. The truth is that comparatively few States have any laws that are competent to the punishment of this kind of iniquity; and this shrewd indirection about the "illegal use of the mail" is a decidedly fortunate circumstance for some of them.

VIRCHOW AND THE DARWINIAN THEORY.

ACCORDING to the Vienna correspondent of the "British Medical Journal," in Professor Virchow's presidential address at the recent meeting of the Anthropological Congress, the Darwinian theory was referred to, and he said that the intermediate link that should bring man and the ape into connection—the proper "proanthropos"—had been sought for in vain. It was impossible even to determine the descent of single races from others; and it could be asserted that among the ancient races there was none that stood in any nearer relationship to the ape than ourselves. There was no tribe of people in the world that we were unacquainted with; and not one of the known tribes could justly be considered ape-like, appearances common to apes—such as prominences of the skull—being insufficient evidence of relationship. There was evidence that in the course of 5,000 years no remarkable changes of type had taken place. This adds to the evidence of the impassability of the chasm between the highest type of anthropoid ape and the lowest type of man.

A MEDICAL CANDIDATE FOR OFFICE.

WE are glad to learn that Dr. Paul H. Kretzschmar, of Brooklyn, has been nominated by one of the political parties for the

office of supervisor at large for the County of Kings. It is too seldom that members of the medical profession are willing to accept that particular duty of citizenship that is involved in the tenure of public office. Dr. Kretzschmar has already served on the Brooklyn Civil Service Commission.

A DEATH BY HYDROPHOBIA.

AT Astoria, Long Island, the second death by hydrophobia, after the lapse of a generation, has recently been reported. The victim was bitten by a random, ownerless Spitz dog, five months ago. The cur was killed, but whether it was rabid or not at the time of the biting is not known. The patient's symptoms had once or twice pointed toward an infection by rabies, but they were dispelled by treatment and other agencies until about a week ago, when the marked indications of hydrophobia became unmistakable and advanced, during a period of four days, until death by assthenia occurred.

PROFESSOR STRUTHERS, OF ABERDEEN.

THE professorship of anatomy at Aberdeen University is vacant by reason of the resignation of Professor John Struthers. Dr. Struthers had been at Aberdeen since 1863, but had been a teacher of anatomy at the Edinburgh University from the time of his graduation, in 1845; so that forty-four years has been the tenure of his instructorship in the two great schools. In 1866 he published an excellent history of the Edinburgh Anatomical School.

ANTIPYRINE IN UTERINE CANCER.

A LETTER to the "Lancet" calls attention to the use of antipyrine in cancer of the cervix uteri. Severe lancinating pains, worse at night, occurring in an advanced stage of this disease, disturbed sleep, intense fœtor of the discharge, and many other discomforts rendered the case particularly harrowing. Ten grains of antipyrine subdued the pain at once, though the beneficial effect of the drug was of short duration. This treatment was repeated as often as necessary, without the occurrence of any unpleasant symptoms attributable to antipyrine.

THE NECROSCOPISTS IN THE BISHOP CASE.

THE board of trustees of the Society of Medical Jurisprudence and State Medicine has taken action that has resulted in the passage of a resolution by the society expressive of sympathy with the medical men under indictment for the part taken by them in the post-mortem examination of the late Mr. Bishop. We are sure that they have the sympathy of the entire profession also. Their action was at most only a technical offense, and the trouble that has already come upon them in consequence of it undoubtedly constitutes as much punishment as any fair-minded citizen would wish to see inflicted on them. We think, therefore, that their further prosecution might be stopped without any disadvantage to the public welfare.

THE PHYSICIANS' MUTUAL AID ASSOCIATION.

A FRESH manifestation of the growing appreciation on the part of the local profession of the usefulness of the New York Physicians' Mutual Aid Association is afforded by the fact that its members are now so numerous as to have recently warranted the board of trustees in voting to pay six hundred dollars, instead of five hundred and fifty, to the beneficiaries of deceased members. A decided additional increase of its membership is to be expected.

THE LATE DR. PHILIPPE RICORD.

THE death of M. Ricord, at the age of ninety, is announced as having taken place on Tuesday of this week. As all the world knows, he was for many years the most noted of venereal specialists, and our knowledge of venereal diseases is largely the outgrowth of his investigations. In spite of his great age, he was, almost to the last, seen and heard from in Parisian medical circles. He was born in Baltimore, of French parents.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 22, 1889:

DISEASES.	Week ending Oct. 15.		Week ending Oct. 22.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	77	13	58	13
Scarlet fever.....	40	3	32	4
Cerebro-spinal meningitis...	1	0	0	0
Measles.....	12	1	27	1
Diphtheria.....	64	20	79	26

The New York Polyclinic.—Dr. Carl Koller, formerly of Vienna, to whom we owe our knowledge of the anæsthetic power of cocaine, has been appointed instructor in ophthalmology at the Polyclinic.

The Medical Society of the State of New York.—Last week we published the address of the chairman of the business committee. Experience shows that many of the members choose to address the president. That they may be able to do so, we will state that the address of the president, Dr. Daniel Lewis, is No. 62 Park Avenue, New York.

The Philadelphia Polyclinic and College for Graduates in Medicine.—The board of trustees have recognized the distinguished services rendered the institution, as former professors, by the following four eminent physicians: Richard J. Levis, M. D., who has been elected emeritus professor of surgery; J. Solis-Cohen, M. D., who has been elected emeritus professor of diseases of the throat and chest; Charles H. Burnett, M. D., who has been elected emeritus professor of otology; and Charles B. Nancrede, M. D., who was recently called to the chair of surgery at the University of Michigan, has been elected emeritus professor of general and orthopaedic surgery. An additional chair of orthopaedic surgery has been created, and Dr. Thomas G. Morton has been elected professor. A new department of dentistry has been created and the faculty has been authorized to place a competent person in charge until the next meeting of the trustees. A new department of experimental therapeutics and physiology has been created, and Thomas J. Mays, M. D., has been elected professor. The chair of clinical surgery has been filled by the election of Thomas S. K. Morton, M. D. C. L. Bower, M. D., has been elected adjunct professor of clinical and operative surgery, and J. Abbott Cantrell, M. D., adjunct professor of diseases of the skin. The chair of pathology is left vacant until the next meeting. The report of the building committee states that contracts have been signed for preliminary work to the amount of \$23,150. About \$30,000 will be required to finish the building, and it has been decided to push the work to completion as fast as donations for the purpose can be obtained. The overcrowded condition of the present building makes it necessary to use every exertion to move into the new building early in the spring, even if it is unfinished.

The late Dr. Alexander B. Mott.—At a meeting of the New York County Medical Association, held October 21, 1889, the following minute was unanimously adopted:

"In the death of Alexander B. Mott the well-maintained heritage of a name illustrious in the annals of surgery is transmitted to posterity with added memories of good work faithfully done. Self-reliant, ingenious in device, and exceptionally skillful in execution, his career exemplified the best attainment of his chosen art, and his departure leaves a vacancy long to be deplored. Sharing the grief of the whole profession which he adorned, this association desires to record its special regret for the loss of a valued member and its sympathy with those who mourn, not alone for the distinguished surgeon, but for the beloved relative or dear friend."

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 13 to October 19, 1889:*

BRADLEY, ALFRED E., First Lieutenant and Assistant Surgeon. Relieved from duty at David's Island, New York Harbor, and ordered to Fort Omaha, Neb. Par. 2, S. O. 241, A. G. O., October 16, 1889.

EVERTS, EDWARD, Captain and Assistant Surgeon. Relieved from duty at Fort Apache, Arizona, and ordered to David's Island, New York Harbor. Par. 2, S. O. 241, A. G. O., October 16, 1889.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon. Relieved from duty at Fort Laramie, Wyoming Territory, and ordered to Fort Apache, Arizona Territory. Par. 2, S. O. 241, A. G. O., October 16, 1889.

HARRIS, H. S. T., First Lieutenant and Assistant Surgeon. Relieved from duty at San Antonio, Texas, and ordered to Fort Keogh, Montana. Par. 2, S. O. 241, A. G. O., October 16, 1889.

O'REILLY, ROBERT M., Major and Surgeon. Granted leave of absence for six months, with permission to leave the United States. Par. 3, S. O. 241, A. G. O., October 16, 1889.

HEGER, ANTHONY, Lieutenant-Colonel and Surgeon. Relieved from duty in Division of the Atlantic and ordered for duty as Attending Surgeon, Washington, D. C. Par. 2, S. O. 241, A. G. O., October 16, 1889.

LORING, L. Y., Major and Surgeon. Sick leave extended two months on surgeon's certificate of disability. Par. 16, S. O. 241, A. G. O., October 16, 1889.

ADAIR, GEORGE W., Captain and Assistant Surgeon. Leave of absence extended for fifteen days. Par. 15, S. O. 238, A. G. O., October 12, 1889.

BRECHEMIN, LOUIS, Captain and Assistant Surgeon. Granted leave of absence for one month. Par. 1, S. O. 98, Headquarters Department of the Platte, October 12, 1889.

HAVARD, VALERY, Captain and Assistant Surgeon. Leave of absence extended one month. Par. 3, S. O. 240, A. G. O., October 15, 1889.

GIBSON, JOSEPH R., Surgeon. Relieved from duty at Fort Sheridan, Ill., and ordered to Governor's Island, New York Harbor. Par. 10, S. O. 242, A. G. O., October 17, 1889.

MAUS, LOUIS M., Assistant Surgeon. Relieved from duty at Fort Porter, N. Y., and ordered to Fort Stanton, New Mexico. Par. 10, S. O. 242, A. G. O., October 17, 1889.

GARDNER, EDWIN F., Assistant Surgeon. Relieved from duty at Fort Lewis, Colorado, and ordered to Fort Porter, N. Y. Par. 10, S. O. 242, A. G. O., October 17, 1889.

EWEN, CLARENCE, Surgeon. Relieved from duty at Madison Barracks, N. Y., and ordered to Willet's Point, N. Y. Par. 10, S. O. 242, A. G. O., October 17, 1889.

GIRARD, ALFRED C., Surgeon. Relieved from duty at Boise Barracks, Idaho, and ordered to Fort Niagara, N. Y. Par. 10, S. O. 242, A. G. O., October 17, 1889.

HALL, JOHN D., Assistant Surgeon. Relieved from duty at Fort Niagara, N. Y., and ordered to Madison Barracks, N. Y. Par. 10, S. O. 242, A. G. O., October 17, 1889.

TAYLOR, MARCUS E., Assistant Surgeon. Relieved from duty at Fort Stanton, New Mexico, and ordered to Boise Barracks, Idaho. Par. 10, S. O. 242, A. G. O., October 17, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending October 19, 1889:*

BERTOLETTE, D. W., Surgeon. Detached from the Franklin and ordered to duty at Naval Hospital, Philadelphia.

RUSH, N. H., Passed Assistant Surgeon. Detached from Naval Hospital, Philadelphia, and ordered to the Saratoga.

HIBBETT, C. T., Passed Assistant Surgeon. Ordered to the Franklin.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the six weeks ending October 19, 1889:*

VANSANT, JOHN, Surgeon. Granted leave of absence for fifteen days. October 16, 1889.

GOLDSBOROUGH, C. B., Surgeon. Leave of absence extended thirty days on surgeon's certificate of disability. October 18, 1889.

PERRY, T. B., Assistant Surgeon. Ordered to temporary duty at San Francisco, Cal. October 15, 1889.

VAUGHAN, G. T., Assistant Surgeon. When relieved, to proceed to Evansville, Ind., for temporary duty. October 9, 1889.

Society Meetings for the Coming Week:

MONDAY, *October 28th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *October 29th*: Medical Societies of the Counties of Queens (semi-annual—Garden City) and Rockland (semi-annual), N. Y.; Boston Society of Medical Sciences (private).

WEDNESDAY, *October 30th*: Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Middlesex, Mass., North District Medical Society (Lowell); Gloucester, N. J., County Medical Society (quarterly).

THURSDAY, *October 31st*: Cumberland, Me., County Medical Society (Portland); Massachusetts Medical Benevolent Society (annual).

FRIDAY, *November 1st*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *November 2d*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Listerine.—"Offensive odor of the breath, due to bad teeth or other causes, may be overcome, or at the least greatly abated," says the "Sanitarian," "by the habitual use of listerine. Add a teaspoonful to a tumblerful of water for a mouth-wash and gargle, and if a little is swallowed, so much the better. Indeed, a bad breath is not infrequently caused by the gaseous eructations of indigestion, and for this also listerine is an excellent remedy, in doses of twenty to thirty drops in a little water."

Proceedings of Societies.

NEW YORK STATE MEDICAL ASSOCIATION.

Sixth Annual Meeting, held in New York, September 25, 26, and 27, 1889.

The President, Dr. W. T. LUSK, of New York, in the Chair.

(Continued from page 444.)

The Treatment of Hernia.—Dr. J. D. BRYANT, of New York, read a paper which formed the basis for a discussion on this subject. He reviewed briefly the surgical history of hernia from the fourteenth century to the present day, describing the various forms of trusses from time to time in vogue. At the present day he said medical men were, for the most part, ignorant alike of the truss armamentarium and how to fit a truss, and this necessitated patients being sent to the instrument-makers for that purpose. Though cures from the use of trusses did undoubtedly result, unfortunately the number was small. It had been his custom to recommend these appliances, and at this time patients of his were still using trusses by his advice which they had already worn for a long time. They came to him for permission to lay them aside, with the statement that "it never came down now," but he recommended the continuance of the truss as an element of safety. In cases of reducible inguinal herniæ children might expect a cure. He usually advised his hernia patients to provide themselves with three forms of truss—one for comfort, strong and durable, to be worn during the day; another specially adapted for use in the bath; and one for ease and security during the hours of rest. The advantages of this advice were obvious, and it was equally obvious that care should be taken to assume the recumbent position when the interchange was made. How cures were accomplished by the use of the truss was still a matter of conjecture. It had been urged that the result was brought about by the irritation establishing adhesive inflammation between the surfaces of the sac, or by keeping the intestine for a long period in the normal position, or that both these were active factors. In his judgment, cures were rare where each of these influences played an important part. It was not his view that adhesive processes were often caused by truss appliances, but rather that the result was due to contracture of the stricture dependent upon the normal resiliency of the parts. If the obliteration were due to inflammatory adhesion, there would be local symptoms pointing to this change as a means of cure. His experience had led him to the following conclusions: 1. That no form of mechanical appliance yet constructed could be relied upon to effect the cure of simple reducible inguinal hernia. 2. That the cure of hernia could not be effected with certainty by any mechanical means. 3. That these mechanical appliances would in many cases afford relief and enable the wearer to pursue ordinary vocations. 4. That the so-called cures were dependent upon the restriction of the abdominal contents, with subsequent contraction due to resiliency of the part and not to the inflammation of serous surfaces. 5. A hard, slightly convex pad, with steel spring attachments, was the best appliance. As to the method of treatment by injection, there were many around him who had tried the procedure thoroughly, and it was for them to state their conclusions. For his own part he had no experience in this direction. He then went on to describe the details of radical cure by means of the open method, giving the approximate results of nineteen of his own cases so treated, and then described, by means of diagrams, his recent modification of the open method. After freeing the hernial sac and ligating its neck, he then quilted the sac between the pillars of the ring, thus affording an animal mem-

brane to give additional strength to the parts. He had operated three times by this method, and the results were, so far, such as would encourage him to further adopt it. He considered the open method the most simple and rational yet devised for the radical cure of hernia. The additional time required was time well employed, because the cure effected promised greater immunity from relapse. The interweaving of the sac with the pillars of the ring might be followed by either the open or closed method, and offered at least equal, and, from his point of view, even greater security than other processes. In cases of strangulated hernia he believed that moderate and well-directed taxis would suffice to return the intestine under ordinary circumstances, but, when this had been conscientiously tried without success, operation should be resorted to at once. If properly conducted, the attempt should not last over a quarter of an hour; if improperly conducted, this was too long. He did not wish to disparage the use, but the abuse of taxis. Surgeons, when called upon to operate for strangulated hernia, should consider it a part of their duty to make the operation for radical cure an addendum to that of the kelotomy. In conclusion, he detailed the various forms of intestinal gangrene likely to come under the surgeon's notice when performing herniotomy, laying down as general principles that: 1. If gangrene of the intestine had already taken place, and the patient's condition were such as to warrant the procedure, the intestine should be repaired and returned to the cavity. 2. If the gangrene involved the upper two thirds of the intestine, then, though the result might be doubtful, repair and return should be practiced. 3. When gangrene existed and the patient's condition contra-indicated interference, a temporary artificial anus should be made. 4. It was better to form an artificial anus, when the necessary surgical assistance was not at hand, for the more formidable operation. 5. Division of the sac was not always called for, and was often unwise when the formation of an artificial anus was anticipated.

Dr. MILLIGAN described the mechanical construction, technique of application, and respective merits of the various forms of truss appliances which experience had demonstrated to be most effective in the treatment of hernia patients at the New York Hospital for the Ruptured and Crippled.

Dr. R. PARK said that he gathered, from what had been said, that the final cure of hernia was a very rare occurrence, and he began to believe that this was the case. Still, he believed thoroughly in the endeavor to effect a cure by radical operation. He thought that even though this effort failed, the patient was in a far better condition than before the attempt. In a certain percentage of cases a radical cure was certainly achieved. He thought the Czerny operation met all the requirements. It could readily be combined with kelotomy in cases of strangulation, and with a minimum of risk to the patient. He certainly preferred the open method. In the closed method the cicatrix was necessarily so much wider, and if this cicatricial tissue was going to stretch, a large one would be a disadvantage. He approved of the suggestion of Dr. Bryant, and should proceed to make use of the plan. By interweaving the sac, as had been described, the inguinal canal was practically closed by animal membrane, which, better than anything else, should act as an additional protection and at a point where it was most needed. He had operated sixty times for radical cure, but had not been able to watch all his cases. In only three of these, however, had any evidence of relapse come under his notice.

Dr. W. T. BULL related the result of his experience with seventy-two cases, and gave his reasons for preferring the closed method.

Dr. DETMOLD said that, though the fact was not exactly pertinent to the subject of discussion, he thought it would be inter-

esting to mention the fact that life insurance companies required all those who were suffering or had at any time suffered from hernia to wear a truss. He thought, too, he might venture to give them a little history of a circumstance which happened over fifty-two years ago. A young woman had come to his office and asked him whether hernia could be operated upon. He had said "Yes," but had not paid much attention to the question. The woman had, however, persisted in her importunity that he should operate, saying that if he did not she should commit suicide. Upon making further inquiries into the case, he had learned that she had recently been married, and that when her husband came to survey his new territory and found evidence of a prominence not laid down in his chart, he had ascribed it to syphilis, and had put on his trousers and left the house. The speaker sent for the man and expostulated with him to no purpose, and so consented to operate. At that time there were no libraries, no journals, and he did not know whether anybody had ever done the operation. The leading medical men around him refused their aid, so with what assistance he could command he went to work. The case was one of simple femoral hernia. He made an incision large enough to enable him to tie the sac, and when he had done this he laid the crural canal bare and filled it thoroughly with lint, and kept this up for several weeks. So far as he knew, the recovery was complete. The husband, hearing what the woman had undergone, came and nursed her, and they "lived happily ever after."

Lantern Views of Bacteria.—Dr. E. K. DUNHAM entertained the members of the association at the evening session of the second day's proceedings by a most interesting account of the details of germ culture in the laboratory. His lecture was effectively illustrated by means of lantern views.

The Cure of Hæmorrhoids by Excision and Closure with the Buried Animal Suture.—In his paper on this subject Dr. H. O. MAROY, of Boston, said that the recent discussion of the surgical treatment of hæmorrhoids, published in the "New York Medical Journal," evoked by a late paper of Mr. Whitehead's, of Manchester, England, had been both timely and interesting. The medication of wounds, and treatment based upon aseptic measures, marked the present as an era of surgical evolution, to which surgery of the rectum should be no exception. Few of the minor surgical diseases caused so much suffering and gave to the general practitioner such constant repetition of complaints as those of the rectum, and, in return for services rendered, no class of patients were more appreciative and grateful. The teachings of the text-books, with few exceptions, offered very little improvement upon the methods of the past in the treatment of the diseases of the rectum. The advocates of the ligature perhaps equaled those who claimed superior advantages to be derived from the use of the clamp and the cautery. Although a practical cure was often obtained from the use of either, he could not but believe that both were surgically defective and should be relegated to history. While it might be conceded that the general practitioner was in a large majority of cases familiar with the pathological conditions pertaining to the hæmorrhoidal diseases, still it might be well to be reminded that the blood was carried with the arterial impulse directly to the part through short branching vessels, and in turn received from the capillaries into an extraordinary network of veins, which emptied through the inferior mesenteric into the portal system. These veins were entirely without valves. Boerhaave and Morgagni had pointed out these anatomical peculiarities, and remarked upon the horizontal position in the lower animals, which thereby took off the superincumbent weight of the blood column. They adduced this as a reason why quadrupeds were not subject to diseases of this nature. He took pleasure in calling attention to a most interesting and

learned article on this subject by Dr. Bodenhamer ("N. Y. Med. Jour.," Jan. 12, 1889, p. 39). It seemed, however, a just criticism that the weight of the venous column alone acted only in a very subordinate degree as a predisposing cause, although manifestly an important factor after the blood-current becomes gradually retarded in the oftentimes enormously dilated hæmorrhoidal veins.

Were the cause to be found in this peculiar distribution of the portal circulation, the upright position of man would make this condition the rule instead of the exception, and it would be extraordinary to find the varicosities limited to the hæmorrhoidal plexuses and lying almost entirely external to the sphincter muscle. Oftentimes, however, after the pathological conditions became well established, the current through the ectasic vessels was so greatly retarded by the weight of the blood-column in the erect position that most patients learned to seek relief by change of posture. Anatomists emphasized the fact that in the normal condition many of the hæmorrhoidal veins were of comparatively large size. In relation to the surrounding pelvic organs these veins occupied a dependent position, and their only support was derived from a loose network of connective tissue. It would be apparent, then, that the anatomy of these thin-walled vessels, their relation to the surrounding parts, and their physiological function, furnished, as it were, a predisposing cause of disease. To this, however, probably might be added a certain condition of weak circulation so often found in persons with thin-walled veins of the lower extremities. It had long been recognized that the varicosities of the hæmorrhoidal vessels, which were probably wanting in the lower animals and were comparatively rare in the savage races, became a more and more constant factor in the sedentary occupations of modern civilization. A great variety of pelvic diseases in the female and the genito-urinary diseases in the male, complicated with constriction, were active causes of rectal disease. The rectum might be regarded as a convenient cess-pool for the reception of the waste and *débris* of the alimentary canal, which poured into it in a more or less fluid state. The curves of the lower bowel, from the sigmoid flexure downward, were an evident design, in part at least, to vary the support of the weight of the column and admirably adapted to equalize the pressure. When the rectal contents remained sufficiently soft to produce equable pressure, the circulation was comparatively little disturbed, and defecation was accomplished with very little muscular strain. If, however, there should be retention of the contents, with absorption of the fluid portion going on until the molding process became difficult, the reverse would be true. The overloaded rectum produced pressure upon the venous return current, causing a train of reflex nervous symptoms, and the hyperæsthetic state followed. Although the pathological condition above described produced by far the larger part of the suffering ascribed to so-called "piles," we must not forget that there were other diseased conditions which might be confounded therewith. Small fleshy masses about the folds of the anus, sometimes called condylomata, were very easy to distinguish. These had nothing to do with the hæmorrhoidal veins or mucous membrane, and might be the result of friction or erosion arising from a variety of causes. The so-called villous tumor of the rectum was, however, of sufficient frequency to be taken into consideration. It was not unlike the villous growths of the bladder or other mucous surfaces. This extra vascularity only revealed its presence because of the hæmorrhage, and was apt to be diagnosticated as a bleeding pile. The soft mucous polypus of the rectum was an adenomatous structure of close relationship to the villous growth, and was sufficiently often the cause of suffering to be borne in mind.

Mr. Whitehead, of Manchester, had emphasized the pathologi-

cal conditions upon which the author had touched, and insisted that the extraordinary dilatation which the veins often underwent could only be learned by dissection upon the living subject. The author's own attention had been called to the condition many years ago when he found how very commonly the veins of the rectum became enormously dilated in a female who had suffered laceration of the perinæum. It was probable that the changes acted to bring about dilatation of the vessels rather than the superincumbent weight of the portal column of blood. When the venous plexus of hæmorrhoidal vessels had become pronouncedly varicosed, they had as a covering the lax submucous tissue of the rectum close to the anus, and when put on tension were protruded as a ring of transverse rugæ around the anal aperture. Certain of the rugæ were developed into rounded protuberances, and sometimes even into fungoid tumors of considerable size. The veins sometimes ruptured into the connective tissue and changes followed which resulted in tumors of various sizes, color, and density, called "external piles." The strain in defecation or gentle pressure by the finger from above downward would frequently cause soft, fleshy, exquisitely sensitive grape-like masses to protrude—"internal piles." The mucous membrane covering these would frequently be found congested and abraded so that more or less continuous hæmorrhage ensued.

The method for the cure of hæmorrhoids by the use of the ligature applied with slight modifications of detail had been considered the safest, surest, and most manageable procedure. The projecting tumors, having been well drawn down, were usually transfixed with a curved needle, armed with a double ligature; this being tied firmly, a portion of the constricted mass was excised. In this way all the hæmorrhoidal tumors were ligated and the mass was then returned within the sphincter. This was the favorite operation of the late Dr. Van Buren and his followers, and had at present in Mr. Allingham, the famous English surgeon, its most distinguished advocate. The use of the ligature, applied to cause necrosis of tissue and then allowed to remain in the wound, was open to the same general objections which had caused its abandonment. When applied in this manner to the constriction of the large vessels, sloughing necessarily supervened, which meant an infected wound, exposing the patient to the same dangers, although, perhaps, of less degree, as infection in any other part of the body.

That this was not hypothetical criticism the writer thought there was abundant proof. The stoutest advocates of the ligature admitted that abscesses, general septic poisoning, and other dangers, as secondary hæmorrhage, were not wanting in the experience of the most careful and practical surgeons. The use of the clamp and cautery came into vogue and had been specially popularized by the distinguished surgeon, Mr. H. Smith, of London. This procedure the author had early adopted in his own work. It had advantages over the ligature in that the primary wound was aseptic. Then, by the time the slough was ready for separation, the subjacent tissues would be fairly well protected by the abundant proliferation of granulation tissue. In his own experience, the suffering caused by the burning was objectionable, while all wounds caused by burning were invariably slow of repair. He was of the opinion that the results obtained from the use of the cautery were generally of a more satisfactory character than from the ligature. Secondary hæmorrhages were reported to have occurred, and it was claimed that contraction was not uncommon after cauterization. It might be accepted as a fact that the use of the cautery, except in certain conditions in uterine cancer, had been relegated to the past. Even here it found fewer advocates than formerly. Certainly bleeding was to be controlled without its use, and it

might be questioned whether deep burning was safer than deep cutting in any disease. Then various crushing instruments had been devised, to be used, however, with or without the ligature, for the purpose of producing more rapid necrosis of the tissue involved. The advantage alleged for the operation of crushing was an avoidance of hæmorrhage, but, on the other hand, some operators reported that hæmorrhage had followed crushing. Theoretically this method seemed to offer little, if any, advantage over the ligature, therefore he had discarded it without trial. There remained something to be said of the cure of hæmorrhoids by the chemical action of certain medicaments injected into the parts. Few of the modern methods had received more speedy attention than this, the so-called "carbolic-acid treatment of piles." It had much to warrant its acceptance. Carbolic acid of itself was at that time believed to be the chief of antiseptics, rapidly coagulating the blood and the albuminoids. It had been variously combined with morphine, cocaine, etc., and little pain had followed its use, and patients and physicians had been alike enthusiastic. At present, however, it appeared that the consensus of surgical opinion was that the result was in a large degree disappointing. When a considerable proportion of acid was used, causing necrosis of tissue, no matter how carefully injected, the tissues not infrequently which it was desirable to remove failed to be acted on, while those which should have been retained were destroyed by sloughing. The explanation was that the fluid introduced into the loose margin of the connective tissue escaped to the extraneous parts. When weaker proportions were used, even after many repetitions of the injections, the hæmorrhoidal vessels remained comparatively unchanged. The method of cure by injection was also sometimes objectionable and even dangerous. The writer had seen a young and healthy man made seriously ill, with considerable fever and general septic poisoning supervening upon the injection of hæmorrhoids at the hands of one of our most capable men. The connective tissue around the anus remained for some days œdematous, reddened, and painful. There now remained for discussion the operation of Mr. Whitehead, of cure by excision. This the author of the paper did not hesitate to accept as a step in advance of all surgical procedures previously discussed. It had been demonstrated that the vessels were frequently so deformed as to fail entirely in the original purpose for which they were designed, and the end sought to be obtained by all previous methods had been their destruction and removal. The real objection to destruction had been the fear of hæmorrhage, and, as a means to obviate this, the ligature and clamp and the cautery were devised. Mr. Whitehead had clearly shown that his method of dissection was safe, that the hæmorrhage was not excessive, and that a rapid cure resulted. The method was certainly scientific. By a clean dissection the parts which it was desirable to eliminate were removed. The free edges of the divided tissues were then stitched together, primary union generally resulting. Mr. Whitehead's method was best given in his own words:

"By the use of scissors and dissecting forceps the mucous membrane is divided at its junction with the skin around the entire circumference of the bowel, every irregularity of the skin being carefully followed. The vessels are then exposed by a rapid dissection of the mucous membrane, and the attached hæmorrhoids, thus separated from the submucous bed on which they rest, are pulled bodily down. Each individual point is brought below the margin of the skin. The mucous membrane below the hæmorrhoids is now divided transversely in successive stages, and the free margin and the severed margin above are stitched, as soon as divided, to the free margin of the skin below by a suitable number of sutures. The complete ring of pile-bearing mucous membrane is thus removed." Mr. White-

head very wisely emphasized thoroughly paralyzing the sphincters by digital stretching. The bleeding vessels, which were small and easily seized, were immediately twisted upon division. The sutures were interrupted and of braided silk. Mr. Whitehead's operation had been, of course, variously criticised, but, as that gentleman could refer to a record of some three hundred cases in which the operation had been, "to the best of his knowledge and belief," a perfect and permanent cure, there was enough upon which to base a conclusion. Some ten years ago Dr. Marey said he had operated in two cases of prolapse of the rectum by first, before resection, entirely encircling the prolapsed part upon a row of continuous double sutures. From the excellent result following these operations he had been led to apply the same method to the base of a ring of hæmorrhoidal vessels before resection. For some years this method of suturing had entirely superseded all others in his practice, and had been repeatedly demonstrated to members of the profession. He now offered his method for consideration on account of its great safety and excellent result, as presenting advantages in the treatment of a troublesome affection. Care should be taken previous to the operation to have the large intestines thoroughly emptied, usually by an active cathartic, supplemented by a copious injection given a few hours before the operation. The patient was to be placed in the lithotomy position, the limbs suitably supported, and the parts to be thoroughly cleansed by a sublimate solution as usual. The digital dilatation of the sphincter was carefully made until the muscle was paralyzed. The rectum was then washed with sublimate solution, care being taken that none of it was allowed to remain. A pledget of wool, into which iodoform was to be freely dusted, was passed into the rectum, and the subsequent stages of the operation were carried out under irrigation with sublimate solution. Along the line of the junction of the mucous membrane with the skin, either with a knife or scissors, division was made from a central line, posteriorly, from below upward on both sides to the median line above. With a little care this division could be made without injury to the plexus of vessels. The loose connective-tissue fascia was usually separated by the finger or a blunt instrument, cutting any connective-tissue bands which might appear. The mucous membrane above the plexus should be then divided transversely in a somewhat similar manner. The deformed hæmorrhoidal plexus was then separated from its surroundings except at its base. The needle, with eye at point, threaded with tendon, was carried posteriorly behind the mass, unthreaded, and rethreaded with the opposite end and withdrawn, the stitch resembling that taken by the shoemaker, drawing the waxed end of his thread in opposite directions through the hole made with the awl. In this way the entire base was encircled by a line of deep double continuous sutures. This was the stitch the author had for many years used in the coaptation of deep parts by the buried suture—as, for example, in rupture of the perinæum and constricting pedicles of abdominal tumors. In this way it was impossible for any tissue to escape. The stitches were not to be drawn too tight, since they were intended merely to control hæmorrhage and not to produce necrosis of the parts they inclosed. Then with scissors the hæmorrhoidal plexus, just above the line of sutures, was to be dissected away; the mucous membrane to be then stitched by continuous suture to the line of division, either with an over-and-over stitch or with a running blind stitch taken from side to side from within outward. The paper concluded with a description of the usual dressings and after-treatment. If the operation was properly done, it was generally followed by primary union. The patient was remarkably free from pain, and the process went on without trouble. The patient need not keep his bed. The bowels should be moved the third or

fourth day. By the method above described the author constricted the blood-vessels before division, insuring a much more accurate readjustment and closure of the parts, while the buried animal sutures manifestly presented advantages over interrupted silk sutures, which latter must be thrown off by suppuration.

The author then exhibited specimens of prepared animal tendons which he advocated as in every way to be preferred in all cases where deep or buried sutures were indicated. He had given *carte-blanche* to a friend in Australia for kangaroo tendon.

Extraction of Cataract without Iridectomy.—Dr. CHARLES STEDMAN BULL, of New York, read a paper with this title (to be published).

(To be concluded.)

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1889.

The President, Dr. I. E. GRAHAM, of Toronto, in the Chair.

(Continued from page 441.)

Microscopical Studies of Malignant Tumors of the Skin.

—Dr. C. HEITZMAN, of New York, read a paper on this subject. The pathology of the skin was intelligible only upon the recognition of the fact that the basis substance of the fibrous connective tissue of the derma was living and capable of proliferation in the same manner in which the protoplasm of this tissue, the so-called "cells," were viable. The reader had first announced this fact in 1873, and since 1880 Stricker, of Vienna, had adopted the same view. In inflammation of the derma there was first noticed an increase in the amount of living tissue in the interstices, and at the same time the basis substance bordering such an inflammatory area returned to its protoplasmic condition, and split up into inflammatory corpuscles, just as the protoplasm between the bundles of connective tissue did. From this inflammatory structure bundles of fibrous tissue might again form, giving us the hyperplasia of Virchow. A breaking asunder of the inflammatory corpuscles led to the formation of pus corpuscles, the sum total of which we termed an abscess.

In the formation of tumors the tissue of the derma invariably returned into its protoplasmic or embryonal condition with the production of new-formed medullary or indifferent corpuscles, and either a tissue kindred to the normal tissue originated from it—as in myxoma, fibroma, etc.—or it remained in an embryonal condition—as in sarcoma, which the author preferred to call myeloma. In cancer a new formation of epithelium took place, with a new formation of myxomatous or fibrous connective tissue. The author would divide all myelomatous—*i. e.*, sarcomatous—tumors into two main divisions: the globo-myeloma, corresponding to the round-cell sarcoma, and the spindle-myeloma, or spindle-cell sarcoma. All other varieties he would consider embraced by these. Globo-myeloma was made up exclusively or prevailingly of globular corpuscles of different sizes; sometimes the smallest was not larger than a lymph-corpuscle, and in that case we had the lympho-sarcoma, which the author thought identical with the outgrowths of the mycosis fungoidea of Kaposi. There were two main sources for these cells—*viz.*, the protoplasm between the bundles, and the basis substance of the bundles themselves. First were observed globular bodies between the bundles; these had unquestionably sprung from the protoplasm by an augmentation of its living matter or by a proliferation of its cells. The newly formed elements were first small, homogeneous, and highly refractive, representing, therefore, solid lumps of living matter. These increased in size and became vacuolated, and a solid or reticulated

nucleus appeared in the center of each corpuscle. At the same time there was a transmutation of bundles of fibrous tissue into either reticulated masses of protoplasm or single pieces, being separated from one another by a little cement substance. Later on these square pieces were further split up into myeloid corpuscles.

When the lymphoma appeared in the derma there was a gradual thinning of the epithelial covering and loss of the hairs, with final disappearance of all epithelial structures. According to the idea of the author, the epithelia were transformed into giant cells, which in turn split up into myeloma corpuscles. In the case of the spindle-myeloma the same course held true as with the formation of the globo-myeloma. In the case of carcinoma the normal epithelium was not transformed directly into cancer cells; there was a stage of indifferent corpuscles of protoplasm, the production of multinuclear masses, which split up into cancer epithelia by the appearance of a new cement substance.

What Waldeyer considered an inflammatory new formation in the surrounding connective tissue was considered by the author to be only the preliminary stage of cancer. The medullary corpuscles which had been formed were transformed into cancer cells. In the epidermal cancer this change was seen along the border of the epithelial pegs. Here the indifferent corpuscles changed into multinuclear bodies in which boundaries of cement substance appeared. In this case, too, the medullary corpuscles within the connective tissue arose from the basis substance as well as from the cells. That the connective tissue participated in the growth of the cancerous tumor, and that its so-called small-cell infiltration was a mere preliminary stage of cancer, was clinically of the utmost importance. Whenever a cancer was removed with the knife, and we found at the cut surface of the extirpated mass small shining medullary corpuscles, we could positively foretell a recurrence, however small the number of such corpuscles found in the fibrous connective tissue of the derma or in the myxomatous network of the fat globules of the subcutaneous tissue.

Dr. ROBINSON did not wish to express positive opinions in regard to the views advanced by the author of the paper until he had studied the matter thoroughly. He would agree entirely with Dr. Heitzman in regard to the histology and growth of connective tissue. He would not, however, classify sarcomata with tumors proper, but considered them the manifestation of an infectious process. They were the result of a dermatitis, and were not a new growth. In the case of an epithelioma we had to do with a specialized structure, and it seemed to him that it would be at least very difficult to prove that epithelial tissue could spring from an ordinary connective tissue. The necessity of the previously existing epitheliomatous tissue was shown by the character of the secondary tumors and the hereditary tendencies of the disease. If epithelial tissue could arise from the embryonal tissue coming from connective tissue, it might be expected that sometimes epitheliomatous growths would form in tissues which were more or less embryonal naturally, such as the lymph glands.

Dr. HEITZMAN remarked that he had just such a specimen.

Dr. ROBINSON thought that no one else had ever seen such a case. As regarded the change from epithelial structures into indifferent corpuscles and then into cancer cells, in his experience he had never seen such a case. He would summarize his position as follows: That an irritation, if not too severe, in which case it would be destructive, might produce a formative growth; that sarcomatous formation might take place from connective tissue without requiring the presence of elements from fetal life; that in the case of the epitheliomata there must be the presence of a previously existing epithelium; that

epithelial elements could not change into medullary corpuscles and then into elements; and no more could connective-tissue elements pass into epithelium.

Dr. HEITZMAN said he was ready to admit that when the myeloma was just starting in the dermal tissues it was impossible to distinguish it from simple inflammatory action. We must depend upon clinical observation, since the origin was identical in the two cases.

Dr. ROBINSON, referring to his belief in the infectious nature of the sarcomata, mentioned Dr. Sherwell's case of round-cell sarcoma of the skin. It had been noticed that some of the tumors disappeared while new ones arose. If they were a new growth they ought to continue to grow indefinitely. It was known that in cases of mycosis fungoidea the tumors would come and go constantly.

Dr. SHERWELL mentioned a quite similar case observed in Burlington, Vt., where many of the tumors had disappeared under treatment, their place being taken by a distinct depression in the skin.

The Diagnosis of Leprosy, especially the Division of the Anæsthetic Form from Syringomyelia.—Dr. P. A. MORROW, of New York, read a paper with this title. Little was said in the text-books about the diagnosis of this disease, perhaps because few writers had been personally familiar with it. In the later stages the diagnosis was not difficult, but in its inception it was often doubtful. In the examination of the suspects at Honolulu a large number were remanded for further developments, and it should be borne in mind that this was not owing to any lack of skill on the part of the physicians. Many of the initial symptoms were quite indeterminate, and might be referred either to leprosy or to other diseases. The affection was most likely to be confounded with erythematous diseases, with lupus, and with certain affections of the nervous system, while many parasitic diseases had lesions similar to those met with in this disease. Two main forms of leprosy were recognized—the tubercular and the anæsthetic. In one there was a determination of the process to the integumentary tissues and in the other to the nervous system. In tubercular leprosy the prodromal symptoms had little value, and the same might be present in syphilis and other diseases. In this form the presence or absence of anæsthesia was of no diagnostic value whatever. The eruption was not at all pathognomonic. The macules which first appeared were round, oval, or irregular, of a bright or sometimes dark-red color, fading on pressure. As a rule, they were not infiltrated, and might disappear without a trace, or they might leave a yellowish spot. Sometimes they might present a picture similar to that of erythema multiforme. After a time these macules became persistent, and then there was a tendency to the formation of tubercles; but the latter might develop in isolated spots, quite apart from the large erythematous areas. In its origin the disease resembled syphilis in the long period of incubation and the successive crops of the eruption. The syphilitic roseola corresponded to the leprosy erythema; the mucous membranes were affected in each, although the throat was not affected in leprosy. There was more infiltration of the skin, especially in the face, in leprosy, and leontiasis was more often seen, as well as the breaking down of the osseous framework of the nose. Sometimes the tubercles of this disease resembled very much those of lupus. Sarcoma had been confounded with the disease, but when the fungoid state was reached and the tumor suppurated the distinction was easily made. The disease had also been mistaken for acne, sycosis, lichen planus, erythema nodosum, molluscum fibrosum, and dermatitis medicamentosa. The *Bacillus lepræ* was invariably found in the tissues and stamped the disease when such examination could be made.

The anæsthetic form of the disease presented a greater variety and complexity of symptoms. While the demonstration of the bacillus was rarely practicable, yet the invariable presence of anæsthesia had almost a pathognomonic value. The macular lesions which were seen were pigmented, and tended to clear up in the center while they spread peripherally. On their first appearance the macules were hyperæsthetic, but this condition was followed by anæsthesia in the center as the affected surface widened. The author showed colored drawings representing a case that had existed five years, where the lesions had been well marked upon the feet and lower part of the leg. Here the central portion had presented a bluish or grayish appearance distinct from the reddish outline of the edges. There had been anæsthesia in the center, with normal sensation just outside the margin. In general it was found that there were many irregularities in the course of the anæsthetic symptoms. It was distinguished from chromophytosis by the absence of scaliness and the absence of the parasite of that disease. It was to be distinguished also from vitiligo and morphœa. The hairs of the affected surface often fell out. An interesting point was the plantar ulcer which very frequently formed, owing, the author thought, to the custom of going with bare feet. This lesion resembled the *malum perforans*.

The nerves most frequently affected were the ulnar, the peroneal, and the third and seventh pairs. There might be wrist-drop and a peculiar claw-like contraction of the fingers. Since the pathological lesion was a multiple neuritis, it was not surprising that there were many diseases of the central nervous system which resembled leprosy. The atrophy and degenerative changes might be limited to the muscles of the hand and forearm, and might present a perfect picture of the lesions of progressive muscular atrophy. They were distinguished by the presence or absence of sensory disorders. The disease most difficult to distinguish from it was syringomyelia. This disease had formerly been considered to be very rare, and to be met with only post mortem, but of late a number of cases had been reported. Its main symptoms were sensory disorders and trophic changes. The atrophy was localized in the muscles of the hand and forearm. There was a flattening of the thenar and hypothenar eminences, with absolute loss of pain and temperature sense, with retention of tactile and muscular sense. The reaction of degeneration was sometimes present. After a time the disease might remain stationary.

The author related the case of a person living in this country, but who had been born in the Sandwich Islands—a young man of twenty years. When eight years old he fractured the right clavicle. Within from one to three years afterward, the history not being definite, a numbness of the hand was felt. It was supposed to be of spinal origin, and the actual cautery was applied. Contraction of the fingers came on and had remained since, but the numbness had crept up the forearm. The right arm measured an inch and a quarter less than the left. There was also atrophy of the muscles of the right leg. A superficial sore appeared on the index-finger, and would not heal. Electric excitability of the hand was lost. After a time two or three brownish spots appeared upon the forearm. This case presented many of the symptoms of syringomyelia, but might be distinguished by the sensory loss. The child had been to the Sandwich Islands when nine years of age, and that fact was of weight in making the diagnosis. The fact that the present good health of the patient was not conducive to the spread of the disease might explain the asymmetrical character of the lesions and the non-progressive type of the disease. There were many abortive cases, and no doubt the removal of this boy to a different climate had increased his capacity for resisting the disease.

Dr. HARDAWAY said that, in his experience, most of the cases in this country were mixed cases. He presumed it was admitted that tropical cases were mostly anæsthetic, while in temperate climates the cases were mixed.

Dr. MORROW did not think so. In India it was comparatively a minimized form of the disease. In the Sandwich Islands there had been noticed a progressive increase in the number of anæsthetic cases, the anæsthetic representing the milder type. About one half were tubercular, one third anæsthetic, and the remainder mixed.

Dr. BRONSON spoke of the great resemblance shown by some of the photographs which the author had presented to syphilitic lesions, and Dr. GREENOUGH called special attention to the same point.

Dr. BULKLEY asked if the lesion on the sole of the foot was sufficient alone to establish a diagnosis.

Dr. MORROW replied that the photograph of this lesion that he had shown had been taken several years before, and that since that time other lesions had appeared, and the patient had afterward been sent to the leper settlement. He did not think that lesion would be present as an early symptom, except in places where the people went barefoot.

The PRESIDENT cited the case of a woman, seventy-two years old, who had the anæsthetic form of leprosy, who suffered with an ulcer on the sole of the foot, though she had not gone barefoot.

Dermatological Bibliography.—Dr. G. T. JACKSON, of New York, presented to the association a very complete list of dermatological published material.

The PRESIDENT returned to Dr. Jackson the thanks of the association.

The Occurrence of Prurigo in America.—Dr. ZEISLER read a paper on this subject. His inquiry was intended to throw light upon the subject question of whether true prurigo occurred in America, and, if there was a difference in the proportionate amount, to what it might be due. In France, up to ten years ago, the disease had been almost unknown. In 1876 Dr. James C. White said that it was not seen in this country. It was now generally believed that true prurigo did exist here, but that the severe form was quite uncommon. The mild form of the disease did certainly occur. Out of 1,370 cases of skin diseases the author had seen twelve cases of prurigo—five of them severe and the rest mild. Out of 1,108 cases in private practice nine had been cases of prurigo, of which three had been severe and six mild. Out of the whole number, the percentage would be 0.875, which was a larger proportion than was generally supposed. According to the reports of this association, a year ago the percentage was 0.027, and last year it was 0.033. In Prague, in 1874, it had been 0.566, and in 1875, in the same city, it had been 0.714. In Christiania there had been reported an occurrence of a little over three per cent., while in Vienna it formed from two to three per cent. of all skin diseases. In the five severe cases there could be no doubt about the diagnosis. Of the twelve patients, only one of whom had been born of native parents, seven might be classed as being in poor circumstances, and four of these seven had been affected with the severe form of the disease. Of the five who had been in moderate circumstances, only one had had the severe form. Five of the seven with mild cases had been cured, and the other two were improving. The five severe cases, which had been watched for a long time, seemed at times to improve a little, and then relapse when neglected. Frequent bathing was one of the best remedies for the disease, and the reader thought that the greater habits of cleanliness in this country would explain the greater rarity of the affection.

The following conclusions were drawn: 1. Prurigo did cer-

tainly exist in America. 2. The severe form, while occurring in perfectly typical examples in patients born or reared here, was comparatively rare. 3. Prurigo mitis was not uncommon here.

Dr. R. W. TAYLOR, of New York, had seen two cases of what seemed commencing prurigo in children who had had chronic urticaria, and one case of true prurigo in the adult.

Dr. FOX had seen two cases in adults where there could have been no question about the diagnosis. Several cases had been presented before the New York Dermatological Society, and some of the members had questioned the diagnosis. Their objections had been based on the cases shown in Vienna in the clinic, where only the marked cases were presented. It seemed to the speaker that there had been a great diffidence in making the diagnosis, on the ground that the cases did not present these marked characteristics. In its mild form the speaker did not believe it to be a very rare disease, although, of course, it was not a common one.

Dr. ROBINSON had never seen a case in this country that he would be willing to diagnosticate as such, although he had seen them in Hebra's clinic.

Dr. GREENOUGH had seen many cases in Vienna, but he had never seen at the Boston Dispensary any cases of what Dr. Zeisler would call the severe prurigo. He had seen several cases about which there was a question. He would not deny that they might have existed, and thought it possible that some of the cases that he and his colleagues had entered as pruritus had been mild cases of prurigo.

Dr. E. WIGGLESWORTH, of Boston, said that the first case reported in this country had been reported by him. He had at present a case under observation—that of a boy who would be presented to the association on the last day of the meeting.

Dr. BRONSON thought something of a bugbear had been made of the subject. If we accepted the view that the disease was essentially a neurosis which primarily affected the sensory and motor nerves, and that the trophic changes were secondary and the result of irritation, we were justified in recognizing it as of common occurrence, even here. It had been his experience that pruritus most affected those portions of the skin which were most affected by prurigo. He believed that the neurosis was identical in the two cases. From certain causes this neurosis was much aggravated in Vienna and some other foreign places, but it was sometimes seen here in the severe form. The speaker had never seen a case of the persistent form as it occurred in Vienna.

Dr. JACKSON, Dr. BULKLEY, Dr. SHEPHERD, Dr. SHERWELL, Dr. HOWE, Dr. KLOTZ, and Dr. HEITZMAN participated in the discussion, each having seen from one to three cases.

Dr. ZEISLER said it was no objection to the diagnosis that the patients were cured. Mild cases were perfectly curable, especially since the use of naphthol. In severe cases the patients could be rendered very comfortable, at any rate.

Eczema Mercuriale.—Dr. J. F. SHEPHERD, of Montreal, reported the histories of two cases of this affection. These cases had followed the use of Scott's dressing, which was made of one part of mercury to four parts of ammoniac plaster. He had used the dressing in the treatment of chronic synovitis. Both cases reported had occurred in young men. In the first case the dressing had been kept on three weeks without renewal. At the end of that time the knee had regained its normal shape. A year later a similar attack had come on and the same application was made, but this time on a surface that had recently been blistered. At the end of a week the skin about the knee was found inflamed, red, and brawny. The next day the face was red, hot, and swollen, and covered with fine vesicles, the

eruption extending down as far as the clavicle. At the same time the eczema about the knee had extended as far as the groin. Recovery was complete in two weeks. In the second case the dressing was removed after three weeks, and an eczematous rash found on the surface which had been covered. Three days later there was a marked swelling of the eyelids, and in two days the whole face had become reddened. At the same time a papular eczema appeared on the leg and forearm, and the genitals were acutely inflamed. Desquamation occurred in two weeks, but the rash did not disappear for six weeks. A third case had been reported to him as occurring in the practice of a colleague, the history being very like those mentioned.

Dr. MORROW referred to the fact that in certain cases the eruption caused by drugs would persist for a long time, although the general rule was for a speedy disappearance when the irritating cause was removed.

Dr. GREENOUGH had seen one patient who had seemed to have a peculiar idiosyncrasy. He had used the ointment and it had been followed by a severe dermatitis which had taken on a diffuse phlegmonous form, and he was confined to his bed for six months.

Clinical Observations on Injections of Insoluble Mercurial Salts in Syphilis.—Dr. H. G. KLOTZ, of New York, read a paper with this title. These injections seemed not to have been used much in this country, and little had been written on the subject. It had been generally considered that the method should be resorted to only in cases of emergency. Fumigations were not always well borne, and there was some danger of injury to the air-passages by inhalation of the fumes. The author had used the cyanide, as a soluble form of the mercurial, but it was expensive, and caused a good deal of pain. In private practice he had given twelve injections to twenty-three patients. It was better to have the patient lying on the face at full length, to avoid sudden motions. The point selected for the injection was preferably about an inch outside the gluteal fold; this point was such that the patient could sit afterward without much discomfort. The needle should be stouter and longer than that used for ordinary purposes. It should be inserted with one thrust, and then should be held quiet for a quarter or half minute, until the quivering of the muscle had ceased. The barrel was emptied slowly, and a fold of the skin pinched up as it was withdrawn. No massage was to be used, and the patient should be enjoined from muscular exertion for several hours.

At the very beginning of the practice, in the hands of the author, one or two abscesses had followed the injections, but for the past two years he had not seen an abscess; when they did occur they were not very troublesome. Sometimes there was a more or less painful swelling after the treatment, not followed by suppuration. The trouble had followed the use of calomel in five cases, and after the yellow oxide it had occurred but twice. Of the fifteen accidents, twelve had been experienced after the use of calomel in water. It was noticeable that the use of calomel in oil never caused local trouble. Salivation seemed less frequent than after innunction. A slight diarrhoea had been present in one case. One patient had had a chill after the treatment, and this had been followed by loss of appetite and a temperature of 103° F., with pain in the chest and difficulty of breathing, accompanied by a few rhonchi. The next day he was better, after profuse perspiration. There had been, probably, an embolism of oil from the injected fluid. In one other patient there had been pain in the chest, but nothing was found on physical examination, and he was soon better.

All affections of the skin disappeared rapidly after two or three injections, as a rule. The pigmented spots went rapidly, generally, but there was not so much effect upon the pustular lesions. In the tubercular syphilides there was a good effect at

first, but it was not lasting, and the iodides had to be given. Mucous-membrane affections were benefited. Persistent primary induration had disappeared in one case after it had lasted a year. In two cases of tertiary syphilis the result had been very satisfactory.

Dr. TAYLOR thought that this subject of mercurial injections was a good illustration of the fact that there were fads and fashions in medicine. Such a method would rarely have to be resorted to as an emergency treatment. He had seen it carried out in Charity Hospital, and it had added much to the discomfort of the patients. Taking into consideration the dangers of embolism, the occurrence of abscesses, the painful nodules that formed, and the pseudo-paralytic condition of the legs, it seemed to him there would be considerable objection to the employment of this method of medication.

Dr. MORROW had had an excellent opportunity to watch the effect of these injections in a large hospital, and he would only reiterate his conclusions, which had been given before the New York Academy of Medicine—viz., that it was a reserve treatment to be followed in cases where the usual and better plan of administration by the stomach could not be followed. He could not see how any drug introduced into the tissues was transformed, by any strange chemistry of nature, into something more potent than if taken by the stomach. He remembered to have seen post-mortem examinations of persons that had died of some intercurrent disease, and the tissues about the point of injection had been in such a necrobiotic condition that he had concluded it to be bad surgery to duplicate these results on a large scale. He had used the treatment in two cases in the last two years, and he did not believe the results had been any better than they would have been by other methods. A strong argument against the treatment was the fact that there were so many dermatologists who had immense numbers of patients passing through their hands, and who rejected this treatment altogether.

Dr. ZEISLER thought that, while the injections might be practicable in hospitals, they should not be used in private practice to any extent. He had never had the courage to treat a patient with the method, which seemed in many respects doubtful. He had always been satisfied with the old methods.

Dr. BRONSON thought we should not condemn the method till we had learned all that was to be obtained from it. It seemed to him to represent a very scientific line of treatment. For frictions, the speaker preferred the mercurial soap to the ointment.

Dr. HEITZMAN said his son had given the injection in the most antiseptic manner possible. In the first case an extremely painful inflammation had been the result, but it had not formed an abscess. Two weeks afterward a second injection had been made, and an abscess had formed. He had been discouraged from making another trial. He did not consider the objection to fumigation, that it injured the respiratory tract, a serious one, for he had never seen such results.

Dr. KLOTZ raised the point that private patients were the very ones on whom this treatment should be tried. He had always explained to patients what the discomforts of the method were, and he had never had any difficulty with them. Some of the patients whom he had treated liked the injections so much that they had insisted upon having them afterward. The objection to the use of innunction was the fact that the patients could not do it thoroughly enough. Many bad results in the way of salivation, bone diseases, and eczemas had been caused by the reckless use of innunctions. In regard to the post-mortem appearances, he had seen cases where no bad results could be discerned at all. His total experience with the method had not been such that he felt that he could not go on.

(To be concluded.)

New Inventions, etc.

PRESENTATION OF INSTRUMENTS

AT THE ELEVENTH MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION.

DR. JOHN O. ROE, of Rochester, N. Y., exhibited three instruments and said:

"At the meeting of this association last year I reported a case of internal œsophagotomy, and also described a new œsophageal bougie. I should now like to present, not only an improved form of the bougie then described, but also certain other instruments I have devised and have found exceedingly useful.

"*A New Œsophageal Bougie.*—The bougie which I described last year was made by attaching the tip of a conical gum-elastic bougie about three inches in length to the end of a hard-rubber bougie by



FIG. 1.

means of a plug and screw. Since that time I have made this improved œsophageal bougie, which I now show you (Fig. 1). This is made all in one piece by simply governing the vulcanizing process so that one end of the bougie is vulcanized as hard rubber while the other is vulcanized as soft rubber.

"It is well known that caoutchouc when mixed with 25 per cent. of sulphur and vulcanized at about 250° F. becomes soft rubber, whereas if the caoutchouc is mixed with 50 per cent. of sulphur and vulcanized at about 300° F. it becomes hard rubber. By carefully considering these principles in the manufacture, the bougie is made with one end of hard rubber and the other end of soft rubber, as is represented by *c* and *d*, Fig. 1.

"These bougies are made in a series of six or more of different sizes. I have each one of mine attached firmly to a whalebone stem, although the bougie can be so made that one stem can answer for the set by attaching it to them with a screw. The advantage of this form of bougie over both the long gum-elastic bougie and the bulbous hard-rubber bougie is that it combines the advantages of both and overcomes the objectionable features that both possess. The flexible soft-rubber tip facilitates the passage of the bougie through the throat and readily directs it into the stricture, and is thereby more easily introduced than is the hard-rubber bulbous bougie; and the slender, flexible whalebone stem causes much less irritation of the throat and gagging, and does not fill up the throat as does the long gum-elastic bougie.

"The advantage of combining the hard and soft rubber instead of making the instrument entirely of soft rubber is that the hard-rubber portion is unyielding and far better for the purpose of dilating œsophageal strictures than it would be if the instrument were made entirely of soft rubber.

"*An Improved Powder-blower.*—The next instrument is an improved powder-blower. Nearly every powder-blower has its objectionable features. Some have to be recharged each time they are used. Some are used with a bottle as a reservoir for the powder, and are necessarily bulky and clumsy and easily broken, or the powder is liable to spill out in handling or to find its way back into the rubber bulb that is used for blowing. I think you will agree with me that nearly all these objectionable features are overcome in this powder-blower, which I now show you (Fig. 2). The stem of the instrument passes through the bottom of the reservoir. A hole is made in the bottom of the reservoir to correspond with a hole that is made in one side of the stem of the instrument. It will therefore be seen that if the hole in the side of the stem, *b*, is turned upward so as to be directly under the hole in the bottom of the reser-

voir, *a*, the powder will fall into the stem or barrel of the instrument; and by giving it a half turn the powder in the reservoir is completely

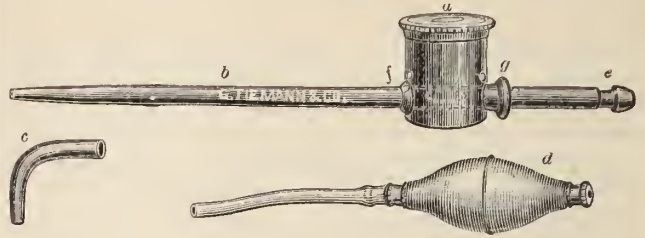


FIG. 2.—Powder-blower.

cut off. The position of the hole in the stem is indicated by an ivory guide, *f*, placed on the stem. When the stem is charged, only the powder that has fallen into it can be blown out. The stem is secured in the reservoir by the binding nut, *g*, which can be removed and the stem taken out for cleansing. The instrument can be used for throwing the powder not only straight, but also in any direction that is desired, by attaching, in the latter case, the curved tip, *c*, to the point of the stem. A flexible rubber tube can be attached to the stem at *e*, by which the powder can be blown out by the operator's breath, or by the rubber bulb, *d*, as shown in the cut. The different parts of the instrument are so nicely adjusted as entirely to prevent the escape of any powder from the reservoir, and it is thus admirable for the use of iodoform.

"The only objectionable feature is that this instrument is not so well adapted to the use of a variety of powders as an instrument made without the reservoir; but the surgeon can readily provide himself with several of the powder-blowers, as their cost is not great, and keep them filled with the powders which he most frequently uses. The facility with which this instrument is used and the saving of time otherwise required for charging the plain powder-blower can at once be appreciated by those who do a large amount of office work.*

"*A Nasal Bow-saw.*—I have one other instrument to show you which I have recently devised, and that is a new form of nasal hand-saw. At

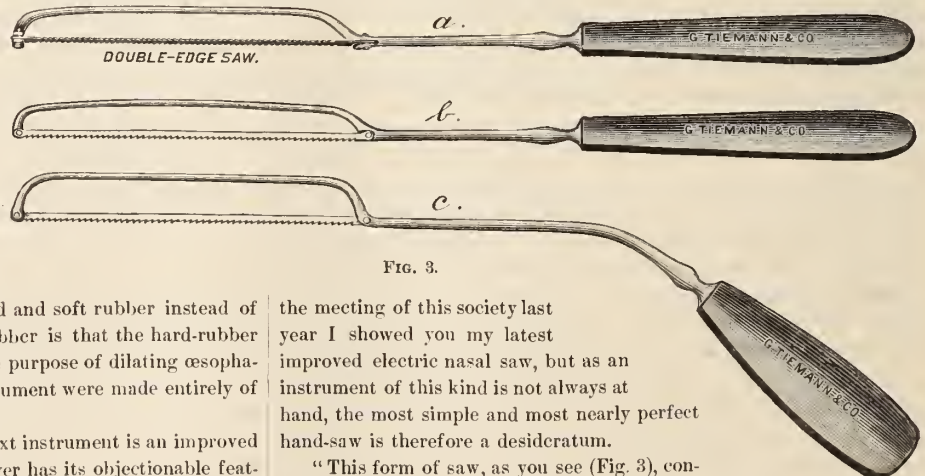


FIG. 3.

the meeting of this society last year I showed you my latest improved electric nasal saw, but as an instrument of this kind is not always at hand, the most simple and most nearly perfect hand-saw is therefore a desideratum.

"This form of saw, as you see (Fig. 3), consists of a blade of a jeweler's saw held by a bow similar to a bow-saw, but made very light and delicate.

"The saw devised by Dr. Bosworth is a very excellent instrument. The only disadvantage the operator finds in using that saw is the flexibility of the blade, so that in attempting to saw off a very hard and rounding exostosis it is often with difficulty that the blade can be

* Since I described and exhibited this instrument before the Laryngological Association on May 28th last, the idea has been appropriated by a certain instrument-maker, who has published a similar cut of the instrument without giving any credit to the originator of the idea.

started in at exactly the spot the operator desires; and even in making a slight lateral pressure to hold the blade up to the point desired, the saw is very apt to make a curved cut. With this little bow-saw these objections are entirely done away with. A very much thinner and finer blade can be used in these saws than in the case where the blade must be sufficiently thick to carry itself. By using the same thin and highly tempered blades that jewelers use for sawing metal, an exostosis of any degree of hardness can be very easily and quickly cut through. These saws I have had made for me in various sizes and shapes. The only disadvantage attached to the saw is that the blade can only be made to cut as deep as the distance of the saw from the back. This objection is obviated by having a saw with the blade placed at right angles to the bow, and with the bow sufficiently high to allow it to pass over the obstruction. In other cases where the bow may interfere with the completion of the operation, the first incision may be made with this saw at exactly the spot desired and the operation completed with the Bosworth saw. The latter saw will then have the perfectly straight groove to run in which has been made with the bow-saw. One of the special advantages of this little bow-saw with the blade set at right angles is in sawing out exostoses in the floor of the nostrils. The very narrow blade will permit the sawing to be done on the exact curve of the floor of the nostril. The saw is also admirably adapted to remove small angular projections and irregularities of the septum. The very fine teeth of this little saw also give it an advantage over saws with coarser teeth, in that they leave a very smooth surface over which the soft parts more quickly spread, and the wound more readily heals.

"Some of these saws I have had made with the handle straight, on the line with the blade of the saw, while in others I have had the handle placed at about the same angle as in the Bosworth saw (see *a*, *b*, and *c*, Fig. 3). In many instances the little straight handle is much more conveniently used than the bent handle, especially when in sawing it is desired to deviate from a straight line.

"The saw with the plane of the blade placed at right angles to the back is represented by *a*, Fig. 3. The blade of this saw is made with teeth on both edges, so as to saw in either direction. In order to prevent the blade from cutting under, when sawing close to the septum, the blade should be placed entirely on the side of the bow, as shown by *b*, Fig. 3. The blade can be put on either side of the bow for sawing upon either side of the septum.

"All these instruments have been made for me in the most admirable manner, by Messrs. Tiemann & Co., 107 Park Row, New York."

A *Pharyngeal Douche* was shown by Dr. SAMUEL JOHNSTON, of Baltimore, who said: This simple apparatus consists of an ordinary soda-water siphon charged in the usual way, with a soft-rubber tube twelve inches long attached to the nozzle.

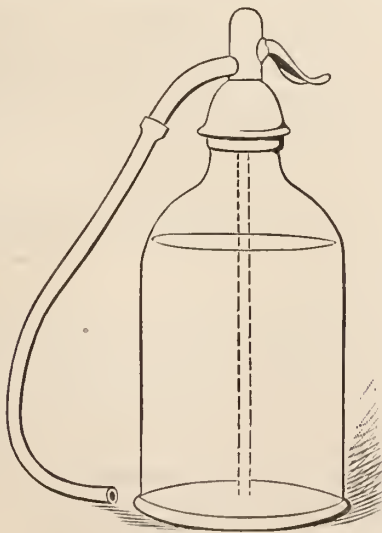


FIG. 4.

The method of using it is as follows:

A bib of water-proof cloth or oiled silk large enough to protect the clothing is first fastened around the neck of the patient, the free end of

the bib resting in a basin to receive the return current. The tube is then inserted into the mouth to a convenient distance, and the pressure turned on by the attendant; the contents of the bottle will then flow with force into the mouth and out again, varying, of course, with the amount of pressure exerted on the stop-cock.

The quantity of tenacious mucus expelled by this means in some cases is enormous, and the relief afforded can only be appreciated by those who have had experience with this process of cleansing the oral cavity.

We have all, doubtless, used the syringe with a flexible rubber tube attached to the tip for washing out the mouth and nasal passages in cases of acute amygdalitis, diphtheria, scarlatina, etc., but I believe we have in this simple apparatus an agent which will give greater ease to those suffering with the class of affections before mentioned than any other local treatment yet employed.

Thus far I have only used soda water; the contents of the siphon can, however, be carbolized or otherwise medicated to suit special cases. A lady, recently under my care with quinsy, for several days used six to eight siphons daily in this way, greatly to her comfort and relief, and it is to her that I am indebted for the suggestion of this novel application of the soda-water siphon.

A *Modification of Voltolini's Palate Retractor* was shown by the president, Dr. MORGAN, which was intended to draw the velum forcibly forward while operating on the bursa pharyngea. The handle was so



FIG. 5.

bent as to allow the hand of the assistant, who retracted the velum, to be entirely out of the line of vision of the operator. Truax & Co., of Chicago, had made the instrument.

Miscellany.

The Southern Surgical and Gynæcological Association will hold a meeting in Nashville, Tenn., on the 12th, 13th, and 14th of November, under the presidency of Dr. Hunter McGuire, of Richmond, Va. The preliminary programme includes the following: The President's Annual Address; "A Report of Gynæcological Work, with especial Reference to Methods," by Dr. R. B. Maury, of Memphis, Tenn.; "Direct Kelotomy, with Cases," by Dr. W. O. Roberts, of Louisville, Ky.; "Open Abdominal Treatment," by Dr. B. E. Hadra, of Galveston, Texas; "The Abortive Treatment of Acute Pelvic Inflammation," by Dr. Virgil O. Hardon, of Atlanta, Ga.; "The Importance of Early Treatment of Inflammatory Affections of the Uterus," by Dr. W. C. Dabney, of University of Virginia; "The Relation of the Nerve System to Reparative Surgery," by Dr. T. O. Summers, of Jacksonville, Fla.; "Concerning the Causes of Frequent Failure of Relief of Reflex Symptoms after Trachelorrhaphy," by Dr. W. F. Hyer, of Meridian, Miss.; "Cranial Surgery," by Dr. De Saussure Ford, of Augusta, Ga.; "The Treatment of Ectopic Pregnancy," by Dr. W. H. Wathen, of Louisville, Ky.; "Laparotomy in Extra-uterine Pregnancy," by Dr. Waldo Briggs, of St. Louis, Mo.; "Epithelioma of the Penis, with the Report of a Case," by Dr. D. W. Yandell, of Louisville, Ky.; "Laparotomy in Intestinal Obstruction," by Dr. C. Kollock, of Cheraw, S. C.; "An Experimental Study of Intestinal Anastomosis," by Dr. J. D. S. Davis, of Birmingham, Ala.; "Operative Interference in Ascites," by Dr. Hugh M. Taylor, of Richmond, Va.; "Observations pertaining to Pregnancy and Parturition," by Dr. W. Duncan, of Savannah, Ga.; "Puerperal Convulsions," by Dr. J. Herbert Claiborne, of Petersburg, Va.; "Some Remarks upon Aneurysms, relating more especially to their Surgical Treatment," by Dr. F. T. Meriwether, of Asheville, N. C.; "Coecygodynia and its Treatment," by Dr. Hunter P. Cooper, of Atlanta, Ga.; "The

Improved Cæsarean Section *versus* Craniotomy," by Dr. W. D. Haggard, of Nashville, Tenn.; "Conservative Surgery in Injuries of the Foot," by Dr. J. T. Wilson, of Sherman, Texas; "Gunshot Fractures of the Femur," by Dr. J. Brownrigg, of Columbus, Miss.; "Tropho-neuroses as a Factor in the Phenomena of Syphilis," by Dr. G. Frank Lydston, of Chicago, Ill.; "Trophic Changes following Nerve Injury in Fractures, with a Report of Two Cases," by Dr. W. Perrin Nicolson, of Atlanta, Ga.; "The Treatment of Malignant Diseases of the Rectum," by Dr. W. T. Briggs, of Nashville, Tenn.; "Gynæcology in its Relations to Obstetrics," by Dr. W. L. Robinson, of Danville, Va.; "Observations based upon an Experience of Seventy-five Abdominal Operations," by Dr. J. Taber Johnson, of Washington, D. C.; "Twenty Consecutive Cases of Abdominal Section," by Dr. L. S. McMurtry, of Danville, Ky.; "Triple Amputations," by Dr. J. B. Luckie, of Birmingham, Ala.; "The Treatment of Contracted Bladder by Hot-water Dilatation," by Dr. I. S. Stone, of Lincoln, Va.; "Complications occurring in the Clinical History of Ovarian Tumors," by Dr. Richard Douglas, of Nashville, Tenn.; "What Kind of Instruments does Modern Antiseptic Surgery demand?" by Dr. J. W. Long, of Randleman, N. C.; "Intestinal Anastomotic Operations with Segmented Rubber Rings, with Some Practical Suggestions as to their Use in other Surgical Procedures," by Dr. A. V. L. Brokaw, of St. Louis, Mo.; "Leucocythæmic Tumors as a Neoplastic Exponent of Rheumatism, and their Similarity to Malignancy—with a Case," by Dr. W. Locke Chew, of Birmingham, Ala.; "What Civilization is doing for the Human Female," by Dr. A. Laphorn Smith, of Montreal, Canada; "The Achievements of Modern Surgery," by Dr. J. Ewing Mears, of Philadelphia; "The Treatment of the Pedicle in Suprapubic Hysterectomy," by Dr. W. M. Polk, of New York; "Pus in the Pelvis and how to deal with it," by Dr. Joseph Price, of Philadelphia.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending October 18th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—															
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.						
New York, N. Y.	Oct. 12.	1,584,771	573						8	4	19	1	7						
Philadelphia, Pa.	Oct. 5.	1,040,245	330						14	1	2	1	2	2					
Philadelphia, Pa.	Oct. 12.	1,040,245	331							12	4			3					
Brooklyn, N. Y.	Oct. 12.	343,602	294						7	1	20			2					
Baltimore, Md.	Oct. 12.	500,343	141							1	2	3							
St. Louis, Mo.	Oct. 12.	450,000	146							4	6	6							
San Francisco, Cal.	Oct. 4.	330,000	120							6	1	3							
Cincinnati, Ohio.	Oct. 12.	325,000	89							12	1	4							
New Orleans, La.	Oct. 5.	254,000	113	1								3							
Detroit, Mich.	Oct. 5.	250,000	66								2		1						
Washington, D. C.	Oct. 12.	250,000	90							5	1	8							
Pittsburgh, Pa.	Oct. 12.	230,000	95							5	1	10							
Denver, Col.	Oct. 11.	135,000	41							13		1							
Rochester, N. Y.	Oct. 5.	130,000	37							4			1						
Providence, R. I.	Oct. 12.	127,000	41									2							
Indianapolis, Ind.	Oct. 11.	124,450	29							5		2	1						
Toledo, Ohio	Oct. 11.	89,000	38							1		7							
Fall River, Mass.	Oct. 12.	69,000	30							3									
Nashville, Tenn.	Oct. 12.	65,153	16																
Charleston, S. C.	Oct. 12.	60,145	28							1									
Lynn, Mass.	Oct. 12.	53,000	12																
Portland, Me.	Oct. 12.	42,000	18																
Council Bluffs, Iowa.	Sept. 16.	35,000	8									6							
Council Bluffs, Iowa.	Sept. 22.	35,000	5									1							
Council Bluffs, Iowa.	Sept. 29.	35,000	9									4							
Council Bluffs, Iowa.	Oct. 6.	35,000	7									1	2						
San Diego, Cal.	Oct. 2.	32,000	4																
San Diego, Cal.	Oct. 9.	32,000	5																
Yonkers, N. Y.	Oct. 5.	30,900	10																
Yonkers, N. Y.	Oct. 12.	30,900	12																
Binghamton, N. Y.	Oct. 12.	30,000	10							2									
Auburn, N. Y.	Oct. 12.	26,000	6									1							
Haverhill, Mass.	Oct. 12.	25,000	8																
Newport, R. I.	Oct. 10.	22,000	3																
Newton, Mass.	Oct. 12.	21,553	8									1							
Keokuk, Ia.	Oct. 12.	16,000	1																
Pensacola, Fla.	Oct. 5.	15,000	7																

Billroth on the Dangers of Carbolic Acid.—"The following letter of Dr. Th. Billroth, of Vienna, has been published: 'I have lately seen four cases in which fingers, which had suffered a most insignificant injury, became gangrenous through the uncalled-for application of car-

bolic acid. Carbolic acid is now much less used in surgery than formerly; we have only gradually become acquainted with its dangers. The acid may not only cause inflammation and gangrene, but also blood-poisoning, and so may even prove fatal. It is useful only in the hands of a skillful surgeon, and ought never to be used without his advice. The best lotion for recent injuries is the ordinary lead lotion, which can be bought at any chemist's. The best antidote in carbolic-acid poisoning is soap, which should be taken immediately and repeatedly until all symptoms of poisoning have disappeared.'"—*Lancet*.

Torticollis in Inflammation of the Middle Ear.—"Torticollis, when it occurs in the course of acute otitis media, has generally been looked upon as a very serious complication due to periostitis of the mastoid process, and the formation of an abscess, with myositis of the sternomastoid. That this is not always the explanation of the complication is shown by Dr. Radsikh in an article in the "Meditsinskoë Obozrënië," in which he gives an account of a case of inflammation of the middle ear following measles, which on the third day became complicated by torticollis, this being due to periadenitis of the neck, and Dr. Radsikh suggests that in these cases enlarged and inflamed glands in the neck may frequently be the cause of wryneck."—*Lancet*.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following :

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

EXTRACTION OF CATARACT WITHOUT IRIDECTOMY.

REPORT OF ONE HUNDRED CASES, WITH REMARKS.*

By CHARLES STEDMAN BULL, M. D.,

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WITHIN the last three years the old method of the extraction of cataract without iridectomy, which was formerly devised and practiced by the French surgeon Daviel, and called by him "simple extraction," has been revived by Panas, Wecker, and others, and has been in many quarters hailed with all the *éclat* of a new operation. Most of the modern French authors report very enthusiastically in its favor, but none of them have as yet given us any detailed or conclusive statistics in regard to the results obtained, nor any comparative statements as to the advantages of the "simple operation" over those of the so-called "linear extraction with iridectomy" devised by von Graefe, and practiced almost universally with great success for the last twenty-five or thirty years.

The ideal operation for the extraction of cataract is undoubtedly the removal of the lens in its capsule through a corneal section, and without wound or excision of the iris; and the restoration of sight in this manner, with the preservation of a round and movable pupil, is certainly to be regarded as one of the greatest of operative achievements.

Sufficient time has now elapsed since the revival of the old "simple operation" to enable us to draw some conclusions as to the merits of this method of operating and the results obtained, in so far as the ultimate vision is concerned; and the writer now presents to the association for their consideration his own experience in one hundred cases of extraction of cataract by the simple method without iridectomy.

As a firm believer in the value of antiseptics in ophthalmic surgery, the reporter deems it wise to give in detail all the steps which he considers necessary in the operation, from the preparation of the patient for the operation to the final testing of the vision and the discharge of the case from observation.

Preparation of the Patient.—If the patient be a hospital case, he should have a bath of the entire body the day before the operation, special attention being paid to the cleansing of the hair and beard with soap and water. This is not considered necessary in the case of a private patient. On the day of operation the patient's face should be carefully washed with soap and water, and just before the operation the face should be laved with Panas's solution of the biniodide of mercury, or with a solution of mercuric bichloride (1 to 5,000), or with a saturated solution of boric acid, and the latter solution should be used for irrigation of the conjunctival *cul-de-sac*. The patient should be placed in the bed which he is to occupy throughout the entire course of

treatment, so as to avoid all unnecessary moving about. This precaution reduces to a minimum the dangers which may arise from prolapsed iris, opening of the wound, loss of vitreous, hæmorrhage, etc.

After the necessary local anaesthesia has been produced by a few drops of a five-per-cent. solution of cocaine hydrochloride, the conjunctival *cul-de-sac* is again thoroughly irrigated with the boric-acid solution, and the patient is then ready for the operation.

The instruments have previously been cleansed and sterilized in boiled water, and have been placed in a bath of absolute alcohol. From this bath they are taken wet as they are wanted for the operation. The hands of the operator and of the assistant, if he has any, are carefully cleansed with soap and water, and then washed with a solution of sublimate (1 to 2,000). Some operators prefer Panas's solution for purposes of cleansing and irrigation; this consists of mercuric biniodide, 0.05 gramme; alcohol, 20 grammes; and distilled water, 1,000 grammes.

The surgeon should sit behind his patient, and should operate on the right eye with the right hand and on the left eye with the left hand. In this way he is never in his own light. If he is not naturally ambidextrous, he should strive to make himself so. A speculum is then introduced to hold the lids open, and the eyeball is firmly grasped with a fixation forceps, the latter being made to seize the conjunctiva and subconjunctival tissue over the insertion of one of the straight muscles of the eye.

A straight, narrow knife, somewhat more slender than the cataract knife of von Graefe, is then introduced on the temporal side in clear cornea, near the limbus, and is passed quickly across the anterior chamber, horizontally in front of the iris, and is brought out at a corresponding point in clear cornea on the nasal side, and the incision is then completed, if necessary, by a to-and-fro movement. The length of the incision should involve about two fifths of the circumference of the cornea.

Some operators, in completing the corneal incision, make a small conjunctival flap as a protection against secondary infection from the conjunctival *cul-de-sac*. I never make such a flap if it can be avoided, as I regard it as a useless complication unless the patient has a chronic conjunctivitis or dacryocystitis; and it undoubtedly increases the danger from primary infection by enlarging the wound. In making the corneal section, care should be taken to pass the knife quickly across the anterior chamber and thus complete the section as rapidly as possible. This prevents almost entirely the escape of aqueous humor, and there is but little danger that the iris will fall over the edge of the knife and be divided.

If the iris prolapse outside of the wound as soon as the section is completed, it is better to restore it to its place in the anterior chamber before opening the capsule. The capsulotome or angular cutting needle is then introduced and carried well behind the inferior margin of the sphincter of the iris, and the capsule is then lacerated by a T-shaped incision or, better, by a quadrilateral one, care being taken to avoid wounding the iris.

* Read before the New York State Medical Association, September 27, 1889.

The extraction of the lens now follows. This is effected by pressure on the eye above the wound and counter-pressure on the lower portion of the cornea with a spatula or rubber spoon. This causes a gaping of the wound and a revolution of the lens upon its horizontal axis, the upper margin of the lens coming forward and presenting in the wound. A brief continuance of this pressure and counter-pressure causes the extrusion of the lens and a more or less extensive prolapse of the iris. It is perhaps safer to remove the speculum before this manœuvre is attempted, so as to avoid as far as possible the danger of prolapse of the vitreous. This should always be done in cases of complicated cataract, especially when the suspensory ligament is defective and the vitreous disorganized, or the lens partially dislocated.

The next step—a very important one—is the removal of the remnants of soft lens matter or cortex, if there are any, from the anterior chamber. This is best done by pressure with the fingers upon the eyeball through the closed lids; or by curette, or spoon, or spatula, by repeated slow movements of the instrument over the cornea from below upward toward the wound; or by repeated and continuous rotary massage of the lids upon the eyeball. These manœuvres should be accompanied by frequent irrigation of the conjunctival *cul-de-sac*, and even of the anterior chamber, by a warmed saturated solution of boric acid or by Panas's fluid. It is very rarely necessary to introduce any instruments into the anterior chamber.

The next step is the replacing of the prolapsed iris. If the iris has not spontaneously reduced itself during the manipulations employed for removing the lens fragments from the anterior chamber, it may be readily replaced or reduced by a gentle stroking with a smooth probe or spatula. If on reduction of the prolapsed iris the pupil is neither central nor round, some surgeons consider it advisable to do an iridectomy at once, so as to avoid the necessity of doing it later. But it is much better to so choose your cases for simple extraction as to exclude all such cases as may possibly necessitate an iridectomy.

For irrigation of the anterior chamber any small lacrimal syringe may be used, but it should always be sterilized and kept exclusively for the purpose. The nozzle should be introduced between the lips of the wound, and the fluid used should be injected very slowly and gently and in small quantities.

The final steps in the operation before the application of the bandage are a careful irrigation of the lids and conjunctival *cul-de-sac* with the boric-acid solution and the instillation of a few drops of a solution of eserine sulphate (half a grain to the ounce) into the *cul-de-sac*, or the application of an ointment of eserine of the same strength. This causes a contraction of the pupil, and thus aids in preventing a secondary prolapse of the iris.

The lids of both eyes are then closed, carefully and smoothly covered with a wad of antiseptic cotton, and a double roller flannel bandage applied over both eyes.

The after-treatment varies somewhat with the nature of the case and the temperament of the patient. The patient is to be kept in bed on an average for three or four days. He is allowed to sit up while eating and to rise from bed

to satisfy the calls of nature. The room need not be darkened. It is my custom usually to remove the bandage and dressing on the next day, but without opening the eyes. The edges of the lids are to be gently cleansed with a saturated solution of boric acid or a solution of mercuric bichloride (1 to 5,000), and a drop of a solution of eserine sulphate is to be introduced. If there is much mucous secretion or any swelling of the lids, the lids are opened, the eyeball and conjunctival *cul-de-sac* are carefully irrigated with the boric-acid solution warmed, and then the eye is carefully inspected. If, on the contrary, the lids look well, the eye is not inspected until the fourth or fifth day, but the dressings are renewed and the lids cleansed daily. If on the fourth or fifth day the pupil is round and central, the eye is carefully cleansed, and, if the wound has closed throughout, the bandage is discontinued except at night, and then is used only on the operated eye. The eye not operated upon is usually left uncovered after the second or third day. If the pupil is round and central and the wound closed, but circumcorneal injection or pain is present, a weak solution of atropia should be used at once several times a day until both these symptoms have subsided.

A few words now in regard to the accidents which may occur in the course of the operation:

1. The iris may fall upon the edge of the knife in its passage across the anterior chamber, and may be wounded or excised as the corneal section is completed. This accident may happen to any surgeon. The rapid passage of the knife across the anterior chamber to its point of exit in the cornea on the opposite side, and the avoiding of any undue pressure on the eyeball by the fixation forceps, will go far toward preventing the occurrence of this accident. The rapid completion of the corneal section also aids in this endeavor. Should the iris be cut or excised in this first step of the operation, an iridectomy must be done at once, and the artificial pupil thus made clean and smooth.

2. *Prolapse of the Vitreous.*—This may occur at any period during the operation, and is always a misfortune. In the hands of a careful operator it is usually slight, and need not interfere with the usual careful manipulations for causing the extrusion of the lens. Any portion of vitreous that remains in the wound after the lens has been removed must be cut off, and great care must then be exercised in any manœuvres undertaken for extracting the remains of cortex from the anterior chamber. It is well, also, in such cases, to avoid all irrigation of the anterior chamber, as it will be very apt to increase the loss of vitreous. Should the vitreous prove to be fluid and the prolapse extensive, the lens should be removed at once, either with the blunt hook or spoon, and the eyelids at once closed temporarily for a few minutes. Then the iris should be replaced, eserine instilled, and both eyes closed with the usual antiseptic dressings and bandage.

3. *More or Less Extensive Hæmorrhage into the Anterior Chamber.*—This may be in great part prevented by avoiding the conjunctival flap. If the hæmorrhage comes from a wounded iris, the latter is to be smoothly excised, and then the further steps of the operation are to be interrupted until the hæmorrhage has been controlled and the blood, as

far as possible, removed from the anterior chamber, as its presence interferes with the proper opening of the capsule and the removal of the lens.

COMPLICATIONS OR ANOMALIES OF THE HEALING PROCESS.—There are several of these complications, which will be considered in the order of the frequency of their occurrence:

1. *Posterior synechiæ* or adhesions of the posterior surface of the iris to the remains of the anterior capsule of the lens. These are very common, and are in many cases filiform or thread-like in character. They rarely obstruct the pupillary area. They are caused by the edges of the lacerated anterior capsule coming in contact with the pupillary margin of the iris, which has already been bruised in the passage of the lens through the pupil. These adhesions occur independently of any actual iritis.

2. *Iritis*, usually of the mild, plastic type, and very often involving only a segment of the circumference of the iris. This is best combated by a weak solution of atropine and warm applications.

3. *More or Less Complete Obstruction of the Field of the Pupil by the Opaque or Thickened Posterior Capsule of the Lens*.—This is a very common complication of the healing process, and usually requires some operative interference—such as discission or some more serious surgical procedure, to be described later.

4. *A more or less irregular pupil*, usually oval, caused by a puckering of the iris in the upper part of the angle of the anterior chamber, without there being any actual adhesion or incarceration of the iris tissue in the lips of the corneal wound. For this there seems to be no remedy of any actual value.

5. *Incarceration of the iris* in the corneal wound, or else merely anterior synechiæ, a more or less marked adhesion of the iris to the inner lips of the wound. The use, once or twice a day, of a drop or two of a half-grain solution of eserine sulphate sometimes succeeds in breaking these adhesions, though more frequently it does not succeed; and it may prove disadvantageous by causing irritation of the iris, and thus increase the chances of posterior synechiæ.

6. *Secondary Prolapse of the Iris*.—If this occurs early and it can not be reduced, it should be cut off as neatly as possible, and the edges gently stroked into place in the anterior chamber. If the wound has already partially closed and the prolapse of the iris is a late occurrence, it is better to leave it undisturbed by any manipulation. This secondary prolapse of the iris is almost always of traumatic origin, from some sudden jar or displacement of the bandage on the part of the patient, and its prevention depends largely on careful nursing. Great care in operating and the rigid exclusion of all unsuitable cases—such as rigidity of the iris, prolapse of the vitreous, dislocation of the lens, or unmanageable patients—will all undoubtedly aid in reducing the cases of secondary prolapse of the iris to a minimum.

7. *Capsulitis, or Inflammation of the Capsule of the Lens*.—This is almost always of the mildly plastic character, and is usually associated with the mild form of iritis. Should it prove to be of the suppurative type, it is almost invariably accompanied by a purulent inflammation of the

iris and infiltration of the tissue of the cornea in the vicinity of the wound, and is always the result of secondary infection from without.

8. *Suppuration of the Lips of the Wound in the Cornea*.—This is always the result of secondary infection, and, if not combated at once, may end in total loss of the eye from suppurative panophthalmitis. Its cause is usually some chronic inflammation of the palpebral conjunctiva or lacrymal sac, and it should be treated at once by a removal of the dressings and bandage, frequent irrigation of the wound, eyeball, and *eul-de-sac* with a hot solution of mercuric bichloride (1 to 5,000), and prompt cauterization of the entire length of the wound by the galvano-cautery. This may be repeated daily, if the surgeon deem it necessary, as long as it seems to influence the course of the suppurative process. If the latter increases in extent, in spite of hot applications and the cautery, the latter does no good, and should be discontinued.

SECONDARY OR AFTER-OPERATIONS.—An important factor in the restoration of good visual acuity in cases of cataract extraction is the performance of what are called secondary or after operations. These are usually of two kinds: 1. Discission or laceration of the posterior capsule. 2. Excision of a piece of thickened capsule or of a piece of membranous tissue, composed of thickened capsule and the products of inflammatory exudation. The gain in sight from a secondary operation is often very great.

1. *Discission or laceration of the posterior capsule* is very often, perhaps in the majority of cases, necessary, but sometimes is dangerous. It is a delicate operation, requiring great nicety in manipulation, good judgment and perfect sight on the part of the surgeon, a sharp knife-needle, and a good light. It is sometimes necessary to employ the electric light in this delicate operation. The capsule may be lacerated by a simple stop-needle with a double cutting edge, but by far the best instrument is a slender, sharp, curved knife-needle, with a sharp point and a curved cutting edge, shaped something like a sickle. This is plunged through the cornea on either side, near the limbus, and the capsule is then lacerated by a single vertical or transverse stroke of the blade, or, if necessary, a crucial incision is made through the capsule. Under cocaine, this may be done by a good operator without the employment of fixation forceps, and this is an advantage, as all undue pressure upon the eyeball is thus avoided. The danger of the operation is proportionate to the density and duration of the pupillary capsular membrane. A capsule which is not thickened by the products of inflammation can be lacerated easily and without danger; but pseudo-membranous opacities resulting from iritis or iridocyclitis must be approached with caution. This leads to a brief consideration of the second variety of after-operation.

2. *Excision of a Piece of Thickened Capsule or of a Pseudo-membrane, and its Removal from the Field of the Pupil and the Interior of the Eye*.—This may be done by making an incision in the cornea near the limbus, and employing the narrow cataract knife or Beer's triangular knife to cut out a triangular piece of the opaque membrane, and its removal by Tyrrell's blunt hook, or by the introduction

of Wecker's knife-scissors through the corneal wound, and the excision and removal of a triangular piece of membrane. This is an extremely delicate, somewhat difficult, and dangerous operation, as the operation may set up a fresh attack of iritis or iridocyclitis, with possibly subsequent closure of the gap made by the knife, or somewhat rapid phthisis bulbi or atrophy of the globe.

Some variations in the general technique of the operation of extraction of cataract without iridectomy have been proposed by different surgeons. Panas always employs an alcoholic solution of the biniodide of mercury as an antiseptic fluid for the irrigation of the anterior chamber. Some writers have used a solution of mercuric bichloride (1 to 10,000) for the same purpose. Knapp found that when small quantities of the latter were employed there was no reaction, but that the injection into the anterior chamber of moderate quantities was followed by more or less transient opacity, appearing in patches on the posterior surface of the cornea. He has therefore abandoned its use in favor of Panas's fluid or a saturated solution of boric acid.

Most surgeons make the incision in the cornea in its upper section, and this is undoubtedly wise, as the chances of secondary prolapse of the iris or loss of vitreous are much diminished, and because the corneal scar, if there be any, is partially concealed by the normal position of the upper lid.

Another modification of the technique of the operation as described in this paper is in the manner of opening the capsule, which consists in lacerating the capsule with the point of the cataract knife while making the corneal incision. This is the revival of a method practiced many years ago by Wenzel and other German surgeons, the capsule being split horizontally in the upper portion of the pupillary space. It was thought that it simplified the operation of extraction, and it certainly demands one instrument the less. It is a difficult manœuvre to perform, and may cause the corneal wound to be irregular and even ragged, and thus protract the healing process. If the capsule were thick, the knife would probably fail to penetrate it, and there would be some danger of causing rupture of the zonula and dislocation of the lens. It would be a very difficult manœuvre if the pupil were narrow and the anterior chamber shallow, and the iris would probably be wounded in such a case. In the opinion of the writer, this method of opening the capsule should be abandoned.

Comparison of the Two Methods of extracting Cataract, with and without Iridectomy.—The advantages of simple extraction without iridectomy are as follows :

1. It preserves the natural appearance of the eye, a central, circular, and movable pupil.
2. The acuteness of vision, other things being equal, is greater than after the old operation.
3. Eccentric vision and orientation are much better than by the old operation.
4. Small particles of capsule are not so likely to be incarcerated in the wound, and thus act as foreign bodies and excite irritation.
5. The necessity of after-operations is probably not so great as after the old operation.

The disadvantages of simple extraction are as follows :

1. The technique of the operation is decidedly more difficult. The corneal section must be larger in order that the extrusion of the lens may be facilitated, as the presence of the iris acts as an obturator or obstacle to its passage. The corneal section must be performed rapidly so as to avoid the danger of the iris falling on the knife and being excised. The cleansing of the pupillary space and the posterior chamber is much more difficult than after the old operation.

2. Posterior synechiæ, secondary prolapse, and incarceration of the iris are more frequent than after the old operation.

3. The operation is not applicable to all cases. This objection, however, applies to all operations.

Indications for performing Iridectomy.—The indications for performing an iridectomy in cases of cataract extraction may be formulated as follows :

1. When the vitreous is fluid or the zonula is ruptured, causing non-presentation of the lens and prolapse of the vitreous.

2. Insufficient length of the corneal section with prolapse of the iris.

3. Bruising of the iris during the operation.

4. A stiff, unyielding sphincter iridis.

5. Irreducible prolapse of the iris after the completion of the operation.

A few words in regard to the wisdom of the employment of general antiseptic rules.

1. The removal and exclusion, as far as is possible, of all bacteria by the employment of unirritating, aseptic fluids for all purposes of cleansing and irrigation, the best of these being boiled water or boiled boric-acid solution.

2. The employment, whenever necessary, of some really valuable antiseptic solution, such as chlorine-water, mercuric bichloride, or silver nitrate, the indications for their use being the appearance of the slightest muco-purulent secretion from the conjunctiva, or cloudiness of the lips of the wound.

3. The fearless employment of the galvano-cautery to the whole length of the corneal wound, if the lips of the wound show any signs of infiltration.

4. The performance of the operation with the most extreme neatness and accuracy, and with the minimum of traumatism.

5. Endeavor to obtain primary union of the wound by careful removal from between the lips of the wound of all foreign substances, and by perfect coaptation of the edges, and the maintenance of the most complete immobility of the organ possible until the wound is firmly closed.

Of the one hundred eyes on which this operation of the "simple extraction" of cataract was performed, useful vision was regained in all save one. This case was that of a patient whose eye had been rendered entirely blind by frequent attacks of irido-chorioiditis, and the lens was removed simply to allay the severe pain, and possibly to aid in quieting the inflammatory process. Not a single eye was lost from suppuration.

Fifty-two of the patients were males and forty-eight were females. The youngest patient was thirteen years old and the oldest was eighty-seven. The complications exist-

ing were as follows: Corneal macula or opacity in nine cases, broad arcus senilis in nine cases, old chorio-retinitis in six cases, chronic Bright's disease in five cases, chronic bronchitis and asthma in four cases, diabetes mellitus in two cases, dilated and immovable iris from a contused wound in two cases, conjunctivitis and marginal blepharitis in two cases, irido-chorioiditis and blindness in one case, posterior synechiæ from old iritis in one case, pulmonary phthisis in one case, and hypertrophy and valvular disease of the heart in one case.

The reduction of the prolapsed iris after the extraction of the lens occurred spontaneously in fifty-six cases, and the iris was replaced by the spatula in forty-four cases. In eighty-three cases there was neither incarceration nor secondary prolapse of the iris. In fifty-three cases there were no posterior synechiæ or adhesions of the iris to the lacerated capsule. In forty-seven cases these adhesions were present, and in ten of these they were due to plastic iritis.

The healing process was normal in eighty-six cases, though in some the process was very slow, especially in the closure of the external lips of the wound.

Iritis of the mild plastic type occurred in ten cases, and retraction of the iris toward the ciliary processes in three cases. There was loss of corneal epithelium in two cases,

and "striped" keratitis in one case. The wound became infiltrated in three cases, necessitating the use of the galvano-cautery. Chorioiditis and hyalitis occurred in two cases, and irido-chorioiditis with occlusion of the pupil also in two cases. Capsulitis followed in one case.

The accidents which occurred during the operation were as follows: 1, loss of vitreous in thirteen cases; 2, hemorrhage into the anterior chamber in two cases; 3, complete collapse of the cornea in two cases; 4, dislocation of the lens in three cases; 5, the lens was removed with the blunt hook in five cases.

The duration of the treatment varied from eleven days, the shortest period, to forty-seven days, the longest period.

Secondary or after operations were done in fifty-three cases—discission or laceration of the capsule in fifty cases, and excision of a piece of capsule or pseudo-membrane in three cases.

The resultant degree of vision in the one hundred cases was as follows: In six cases, $\frac{2}{30}$; in thirteen cases, $\frac{3}{30}$; in twenty-four cases, $\frac{4}{40}$; in twenty-two cases, $\frac{5}{50}$; in twenty-one cases, $\frac{6}{60}$; in ten cases, $\frac{7}{70}$; in two cases, $\frac{8}{80}$; counting fingers at several feet in one case. No perception of light in one case, eye previously blind for many years.

No.	Sex.	Age.	Nature of cataract.	Complications.	Operation.	Reduction of iris.	Healing process.	Second'ry prolapse or incarceration of iris.	Posterior synechiæ.	Duration of treatment.	Primary vision.	Secondary operation.	Ultimate vision.
1	F	68	Senile, hard, L. E.	Broad arcus senilis.	L. E., prolapse of vitreous at moment of capsulotomy; lens removed by hook; collapse of cornea; hæmorrhage into anterior chamber.	By spatula.	"Striped" keratitis; slow healing of lips of wound.	None.	One.	Days 23	20/200	Discission of posterior capsule 4 weeks later.	20/50
2	M	13	Traumatic 8 mos. before; R. E.	Tremulous iris; dilated pupil.	Normal, except slight loss of vitreous after extrusion of lens.	Spontaneous.	Normal.	None.	Two.	15	20/50	.....	20/40
3	F	26	Traumatic; blow f'm cork 3 mos. ago; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	18	20/100	.....	20/70+
4	M	21	Traumatic 4 yrs. ago; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	20	20/100	Discission of thickened capsule 3 wks. later.	20/70
5	F	70	Senile, hard; R. E.	Corneal macula.	Normal.	By spatula.	Normal.	None.	None.	21	20/200	.....	20/70
6	F	22	Traumatic; R. E.	None.	Normal.	By spatula.	Normal.	None.	None.	24	20/100	.....	20/100
7	F	55	Hard, nuclear; R. E.	None.	Considerable soft lens matter carefully evacuated by pressure; irregular coaptation of lips of wound.	Spontaneous.	Slow.	None.	Two.	26	20/200	Discission 4 wks. later.	20/20
8	M	60	Senile & traumatic; R. E.	None.	Normal.	By spatula.	Slow.	None.	None.	22	15/200	Discission 3 wks. later.	20/70
9	M	42	Traumatic; R. E.	Incipient cataract in oth. eye.	Normal.	Spontaneous.	Normal.	None.	None.	16	20/100	Discission 2 wks. later.	20/50+
10	M	62	Traumatic; R. E.	Ant. polar cat. in L. E. for many years.	Normal.	By spatula.	Slow.	None.	None.	22	10/200	Discission 4 wks. later.	20/100+
11	M	65	Hard, senile.	Aphakia in L. E. with old chorioiditis.	Prolapse of vitreous at once; lens dislocated downward and inward, and removed in its capsule by blunt hook.	By spatula.	Slow; iritis.	None.	Several.	28	8/200	Laceration of dense membrane 6 wks. later.	20/70+
12	M	38	Traum'ic, nuclear; L. E.	None.	Normal.	Spontaneous.	Slow; iritis.	None.	Several.	26	20/200	.....	20/50-
13	M	70	Hard, senile; R. E.	Broad arcus senilis.	Prolapse of vitreous; retraction of iris; lens disloc. downward, and removed in its capsule with spoon; loss of considerable vitreous.	By spatula.	Very slow; opacities and membrane in vitreous.	None.	One.	38	10/200	Discission 5 wks. later.	20/100
14	F	78	Hard; R. E.	None.	Normal.	By spat.	Normal.	None.	Two.	23	20/70	.....	20/40
15	F	40	Traumatic; R. E.	Incipient cat.; L. E.	Normal.	Spontaneous.	Normal.	None.	One.	15	20/70	Discission 4 wks. later.	20/40+
16	M	47	Traumatic; R. E.	None.	Normal; much soft cortex; free irrigation of anterior chamber.	By spatula.	Irido-cyclitis; dense membrane in pupil.	None.	Several.	47	3/200	Removal of a triangular piece of membrane 3 wks. later.	20/200+
17	F	68	Hard; L. E.	None.	Normal.	By spat.	Normal.	None.	None.	16	20/70	.....	20/40
18	F	79	Hard; L. E.	None.	Normal.	By spat.	Slow.	None.	None.	24	20/100	.....	20/50
19	M	45	Hard; R. E.	None.	Normal.	By spat.	Normal.	None.	None.	22	20/200	.....	20/50

No.	Sex.	Age.	Nature of cataract.	Complications.	Operation.	Reduction of iris.	Healing process.	Second'ry prolapse or incarceration of iris.	Posterior synechiae.	Duration of treatment.	Primary vision.	Secondary operation.	Ultimate vision.
20	M	64	Hard; L. E.	R. E.; phthisis bulbi following extraction of cataract 15 mos. before.	Normal.	By spatula.	Wound healed on 3d day; on 9th day loss of epithelium from lower half of cornea; this was regenerated in 3 days under bandage.	None.	One.	Days 19	20/70+	.....	20/50+
21	F	66	Hard; R. E.	None.	Normal.	By spat.	Slow.	None.	Two.	19	20/100	.....	20/70+
22	F	70	Hard; R. E.	None.	Normal.	By spat.	Slow.	None.	None.	22	20/100	Discission 3 wks. later.	20/70+
23	M	65	Hard; R. E.	Old chorioiditis.	Normal.	By spatula.	Corneal epithelium raised by clear fluid in spots, like those in keratitis bullosa.	None.	Two.	14	20/200	.....	20/200+
24	M	46	Hard; L. E.	Macula cornea.	Normal.	Spontaneous.	Normal.	None.	None.	16	20/100	.....	20/70
25	M	17	Traumatic; R. E.	None.	Normal; post. capsule torn by needle.	Spontaneous.	Normal.	None.	Two.	12	20/50+	.....	20/30+
26	M	60	Hard; L. E.	None.	Normal.	By spat.	Slow.	None.	None.	20	20/100+	.....	20/50+
27	F	54	Hard; L. E.	Old chorioiditis.	Normal.	By spat.	Slow; iritis.	None.	One.	16	20/200	.....	20/100+
28	F	55	Hard; R. E.	Corneal macula.	Normal.	By spatula.	Normal.	None.	None.	22	20/100+	.....	20/70+
29	M	27	Semi-hard.	Irido-chorioiditis, blind eye; great pain.	Normal; iris separated from its adhesions to capsule throughout entire circumference of pupil.	By spatula.	Normal.	None.	Several.	14	0	Blind eye.	0
30	M	58	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	16	20/100	Discission 3 wks. later.	20/40-
31	F	60	Hard; R. E.	Chronic conjunctivitis, but little secret'n.	Normal.	Spontaneous.	Normal.	Iris incarcerated.	None.	13	20/70+	.....	20/50+
32	M	61	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	Iris incarcerated.	None.	14	20/50	.....	20/40+
33	M	64	Hard; L. E.	Chronic Bright's disease.	Profuse hæmorrhage into ant. chambr., rendering operation very protracted.	Spontaneous.	Very slow; outer lips of wound long patulous.	Iris incarcerated.	None.	32	20/200	.....	20/70
34	F	56	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	Iris incarcerated.	None.	12	20/100	.....	20/40+
35	M	63	Hard; R. E.	Chronic Bright's dis.	Complete collapse of cornea.	Spontaneous.	Very slow; outer lips of wound long patulous.	Iris incarcerated.	None.	30	15/200	Discission 2 wks. later.	20/100
36	M	62	Hard; L. E.	Broad arcus senilis.	Normal.	Spontaneous.	Normal.	Iris incarcerated.	None.	13	20/70	.....	20/40-
37	M	64	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	No incarceration.	Two.	12	20/50-	Discission 2 wks. later.	20/30+
38	F	57	Hard; L. E.	Faint corneal macula.	Normal.	By spatula.	Normal.	No incarceration.	Three.	16	20/100	Discission in 3 wks.	20/50-
39	F	69	Hard; L. E.	Broad arcus senilis; Bright's dis.	Patient very hard to manage; prolapse of vitreous and partial disloc. of lens.	By spatula.	Very slow.	Iris incarcerated.	One.	29	20/200	Discission 2 wks. later.	20/40-
40	M	58	Hard nucleus; soft cortex; R. E.	Pulmonary phthisis.	Normal.	Spontaneous.	Normal.	No incarceration.	None.	14	20/50+	Discission 3 wks. later.	20/20-
41	M	66	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	No incar.	None.	11	20/50+	Discission 2 w. later.	20/20
42	F	51	Hard; L. E.	Chronic Bright's disease.	Normal.	Spontaneous.	Slow; protracted gaping of ext. lips of wound.	Iris puckered & pupil not centrl.	One.	26	20/100+	Patient would not consent to a discission.	20/50-
43	F	70	Hard; R. E.	Very broad arcus senilis; mark'd senil. of patient.	Slight loss of vitreous; some fragments of cortex left in anterior chamber.	By spatula.	Normal, but rather slow.	Iris incarcerated.	None.	19	20/200+	Discission 1 month later.	20/50+
44	F	62	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	No incar.	One.	12	20/50	.....	20/30
45	M	49	Semi-hard; L. E.	Very unruly patient.	Normal, but protracted.	Spontaneous.	Normal.	No incarceration.	None.	16	20/70	Discission 3 wks. later.	20/40+
46	M	58	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	No incar.	One.	13	20/40-	.....	20/30-
47	F	66	Hard; L. E.	Old chorioiditis in R. E.	Slight loss of vitreous.	By spatula.	Normal.	No incarceration.	Three.	20	20/200	Discission 1 mo. later; chorioiditis found after discission.	20/70
48	M	53	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	No incar.	None.	14	20/40-	.....	20/30
49	F	75	Hard; R. E.	Chronic bronchitis, asthma, and nasopharyngeal catarrh.	Vitreous prolapsed as section was completed; lens removed by hunt hook without opening the capsule; large amount of vitreous lost.	By spatula.	Iritis and infiltration of lips of wound; hot water, atropia, and galvano-cautery, the latter applied twice.	No incarceration.	Dense false membr. block'g entire pupil.	43	Light.	Removal of large irregularly triangular piece of iris and false membrane by Wecker's scissors.	20/100+
50	F	50	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	Two.	12	20/50+	Discission 10 d. later.	20/30-
51	F	42	Semi-hard; L. E.	Chorio-retinitis syphilitica in R. E.	.....	Spontaneous.	Normal.	None.	One.	15	20/200	Discission 2 wks. later.	20/70+
52	F	61	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	Three.	18	20/70-	Discission 10 d. later.	20/30+
53	M	58	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	12	20/70+	Declined any after-operation.	20/40-
54	M	59	Hard; L. E.	None.	Normal.	By spat.	Normal.	None.	None.	14	20/70-	Discission 8 d. later.	20/40
55	F	64	Hard; R. E.	Slight macula of cornea.	Normal.	By spatula.	Slow.	Iris incarcerated.	None.	22	20/100	.....	20/70+
56	F	70	Hard; L. E.	Broad arcus senilis.	Normal.	By spatula.	Slow, especially in external lips of wound.	Iris incarcerated.	None.	24	20/70	Discission 4 wks. later.	20/40
57	M	48	Traumatic from contusion; no wound of cornea; L. E.	Iris moderately dilated and immovable.	Slight loss of vitreous.	By spatula.	Normal; iris contracted under eserine.	No incarceration.	Two.	20	20/70-	Discission 6 wks. later.	20/30
58	M	63	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	14	20/50	.....	20/40
59	M	57	Second'y, following repeated attacks of syphilitic iritis; R. E.	Several posterior synchiae.	Normal, but somewhat protracted.	By spatula.	Slow iritis.	None.	Several.	22	20/200	Free discission 5 wks. later.	20/50
60	F	78	Hypermetropic; R. E.	Br'd arc. sen.; chron. bronch.	Normal.	By spatula.	Very slow.	Incarceration of iris.	None.	24	20/100	.....	20/70-
61	F	60	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	One.	16	20/70+	Discission 2 w. later.	20/40+
62	M	56	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	Two.	15	20/70	Declined any further operation.	20/50+
63	M	68	Hard; L. E.	Corn'l mac'la.	Normal.	Spontaneous.	Normal.	No incar.	One.	12	20/200	Discission 4 w. later.	20/70-
64	F	59	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	Two.	15	20/50+	.....	20/40
65	F	62	Hard; R. E.	None.	Normal.	By spat.	Normal.	None.	One.	17	20/200+	Discission 3 w. later.	20/50+
66	M	71	Hard; R. E.	Broad arcus senilis.	Normal.	By spatula.	Slow.	Iris puckered upw.	None.	20	20/100	Discission 5 w. later.	20/50+
67	M	50	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	10	20/50	.....	20/40

No.	Sex.	Age.	Nature of cataract.	Complications.	Operation.	Reduction of iris.	Healing process.	Second'ry prolapse or incarceration of iris.	Posterior synechiae.	Duration of treatment.	Primary vision.	Secondary operation.	Ultimate vision.
68	F	36	Soft; L. E.	None apparent.	Normal.	Spontaneous.	Normal.	None.	Two.	16	20/70+	Discission 2 wks. later.	20/40+
69	F	61	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	One.	17	20/200+	Discission 4 w. later.	20/70+
70	M	72	Hard; R. E.	Chr. bronch. and asthma.	Slight loss of vitreous.	By spatula.	Very slow; patient can not lie down at all.	Iris incarcerated.	None.	30	20/200	Discission 2 mos. later.	20/100+
71	F	87	Hypermaturo; R. E.	Chronic bronchitis; cataract well advanced in L. E.	Normal.	By spatula.	Very slow; the external lips of the wound not healing for four wks.; some iritis and consid. pain; a slow inflam. process in chorioid and vitreous continuing for several weeks.	No incarceration of iris, but some p'k-ering of the folds of the iris upward.	Several.	27	Counting fingers at one ft.	None deemed advisable.	Fingers counted at three feet.
72	F	61	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	Two.	16	20/70	Discission 3 w. later.	20/40+
73	M	57	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	Ir. puck'd upw., but no adhe.	None.	18	20/100	Discission 4 wks. later.	20/50+
74	M	59	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	14	20/50+	Discission 2 w. later.	20/20-
75	F	63	Hard; R. E.	Chronic hypertrophy and valvular disease of the heart.	Retraction of iris; loss of vitreous; lens removed with hook.	By spatula.	Violent irido-cyclitis, with plastic exudation, entirely blocking the pupil.	None.	Almost complete adhesion of iris to capsule.	30	Perception of light.	One mo. later division of the iris & pseudomemb. in a diagonal direction downward and outward with narrow knife.	20/70
76	F	52	Hard; L. E.	Central macula of cornea.	Normal.	Spontaneous.	Normal.	None.	None.	12	20/100	.....	20/70-
77	M	70	Hypermaturo; R. E.	Broad arcus senilis.	Normal.	By spatula.	Iritis of mild type.	None.	Several.	17	20/100	Discission 4 wks. later.	20/40
78	M	76	Hypermaturo; R. E.	Chron. blepharo-adenitis.	Loss of vitreous.	By spatula.	Iritis.	None.	Several.	22	20/200	Declined operation.	20/100
79	M	70	Hard; R. E.	Patient very feeble and badly nourished.	Retraction of iris toward ciliary processes, and lens removed with difficulty.	Spontaneous.	Infiltration of lips of wound, and some hypopyum on 3d d.; free irrigat'n of ant. cham. and application of galvano-cautery to whole length of wound.	Prolapse of iris on eighth day, and left undisturbed.	Several.	29	20/200	Discission 5 wks. later.	20/70+
80	F	64	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	15	20/70+	.....	20/40-
81	F	69	Hard; L. E.	Corneal mac.	Normal.	By spat.	Normal.	None.	None.	16	20/200	.....	20/100+
82	M	51	Semi hard; R. E.	Diabetes mellitus.	Normal.	Spontaneous.	Slow.	None.	One.	18	20/50-	Discission 3 wks. later.	20/30+
83	F	58	Hard; B. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	12	20/40-	.....	20/30+
84	M	65	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	14	20/70+	Discission 3 w. later.	20/30+
85	M	54	Semi-hard; L. E.	Diabetes mellitus.	Normal.	Spontaneous.	Slow.	None.	None.	23	20/100	Discission 2 wks. later.	20/50+
86	M	42	Traumatic; R. E.	C'ntus of eyeball f'm blow.	Normal.	By spatula.	Iritis.	None.	Several.	19	20/70+	.....	20/50+
87	M	46	Traumatic; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	11	20/50-	Discission on 17th day after extraction.	20/20-
88	F	68	Hard; L. E.	None.	Normal.	Spontaneous.	Slow.	None.	Two.	26	20/70+	.....	20/50
89	F	52	Immature in B. E.	Chronic Bright's dis.	Normal.	Spontaneous.	Iritis.	None.	Several.	23	20/200+	Discission 3 wks. later.	20/70
90	M	60	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	16	20/50	.....	20/40
91	F	63	Hard; R. E.	Feeble patient.	Normal, with slight loss of vitreous.	By spatula.	Infiltration of wound on 3d day; galvano-cautery at orifice.	Incarceration of iris.	None.	29	20/200	Declined operation.	20/70-
92	M	59	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	One.	14	20/50-	.....	20/40+
93	F	64	Hard; L. E.	None.	Normal.	By spat.	Normal.	None.	None.	16	20/100	Discission 2 w. later.	20/50+
94	F	71	Hard; R. E.	Corneal macula.	Normal.	By spatula.	Slow.	Incarceration of iris.	None.	20	20/200	.....	20/100
95	M	59	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	14	20/100+	Discission 3 w. later.	20/40+
96	F	60	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	16	20/70+	Discission 4 w. later.	20/30+
97	F	66	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	Two.	17	20/100+	Discission 2 w. later.	20/50+
98	F	61	Hard; R. E.	None.	Normal.	By spatula.	Slow.	Iris incarcerated.	None.	29	20/70+	Declined any further operation.	20/50
99	M	56	Hard; R. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	13	20/70+	Discission 4 w. later.	20/20-
100	M	59	Hard; L. E.	None.	Normal.	Spontaneous.	Normal.	None.	None.	15	20/50-	Discission 3 w. later.	20/20

ON GUNSHOT WOUNDS OF THE ABDOMEN,
WITH ESPECIAL REFERENCE TO
WOUNDS OF THE INTESTINES.

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(Concluded from page 455.)

In the cases which recovered without operation the diagnosis of penetration was made by Dr. Sands, Dr. Markoe, and Dr. Bull, and the recorded symptoms seem fully to justify it. If to them should be added the cases treated at the Roosevelt Hospital, the records of which are also apparently complete—six cases without operation, two deaths; and three treated by laparotomy, all fatal—we have these totals:

Without operation, 23 cases, 15 deaths. Mortality, 65 per cent.

With operation, 16 cases, 13 deaths. Mortality, 81.2 per cent.

Most of the Roosevelt cases treated without operation were under the care of Dr. Sands.

It is not a brilliant showing for either method of treatment, and we must still look beyond percentages of results to details and principles—*observationes perpendendæ non numerandæ sunt*. Time will not permit me to give even an abstract of the histories of the cases; I can only refer to some of the more important features.

In the first place, in some of the cases the injuries were such that death, in the light of our present knowledge, must be deemed to have been inevitable under any method of treatment. Of the thirteen cases treated by laparotomy at the Chambers Street and New York Hospitals, four were of this character; of the seventeen not operated upon, three were of this character, and possibly two others in which death followed promptly and there was no autopsy.

Of the remaining eight that died without operation, two survived one day, and one each two, three, four, five, twenty-three, and twenty-eight days. Of the four cases that re-

covered, in one (Sands's) the wound was "in the left hypochondrium, five inches and a half from the median line"; in another (Markoe's) in the "right hypochondrium, on a line with the free border of the liver" (.32-caliber ball); in another (Bull's), two inches to the right of and half an inch above the umbilicus, "a probe passed four inches"; in another (Bull's) the ball (.22 caliber) entered the right eighth intercostal space one inch posterior to the mammary line; a probe passed three inches downward and forward; there was considerable shock and some tympanites at first.

The patient that survived twenty-eight days died of pyæmia; the bullet entered above the right sacro-iliac synchondrosis and lodged under the skin six inches above the right anterior superior spine of the ilium; at the autopsy no wound of the intestine was found, and no peritonitis; it can hardly be doubted that his chances of recovery would have been increased by enlargement and drainage of the parietal wounds. Possibly the bullet did not fully enter the peritoneal cavity, but opened it, if at all, by a slit along the side of its track in the lateral abdominal wall.

Of the remaining cases, it can only be said that the injuries were such as have been successfully treated in other instances by laparotomy.

Of the ten cases of death after operation, the histories of four (including the two reported in this paper) have been published. In four, as I have said, the injuries seem to have been necessarily fatal; in two of the remaining five there is perhaps some ground for thinking that the chances of recovery might have been better if the operation had not been undertaken; in one of them a small bullet (.22 caliber) had lodged in the liver without wounding any other organ; it was removed, and the patient died of peritonitis; in the other the bullet had traversed the abdomen from the left eleventh intercostal space, three inches from the spinal column, and lodged under the skin below the free border of the ribs in the left mammary line; it was removed and the cavity explored with the finger through the wound of exit without finding evidence of intestinal injury; three days later the wound of exit was enlarged to three inches and a half and the finger again introduced; this was followed by a gush of fæces that had escaped from a ragged opening in the transverse colon, and had collected in a space that was apparently shut off from the general cavity by recent adhesions; the incision was further enlarged by a transverse addition extending four inches to the left, the cavity cleaned, the edge of the wound in the colon stitched to that of the parietal incision, and the cavity lightly packed with gauze. The patient died six hours later. Possibly, if the interference had been limited to providing free escape for the fæces, the patient might have recovered with a stercoral fistula, as so many others have done; but his condition previous to the operation was very unpromising.

Of the remaining four fatal cases, in one the operation was done three hours and a half after the receipt of the injury; five wounds were found in the small intestine and were closed; the patient survived forty-three hours, and at the autopsy an additional wound was found in the transverse colon, from which fæces had escaped into the cavity. In another the operation was done four hours after injury,

and five wounds of the intestine were sutured; the patient survived twenty-four hours, and the autopsy showed general peritonitis. In the third (Dr. Wilkin's case, reported above) there was an interval of seven hours between the injury and the operation; there were six wounds of the intestine, and fecal extravasation had already taken place and excited peritonitis. Of the fourth the hospital record gives no details.

The thirteen cases may be fairly summarized, I think, as follows: Three recovered; the injuries were multiple (six, two, and four perforations of the intestine, and in two free hæmorrhage from the wounded mesentery), and would probably have caused death if not repaired by the operation. In four the injuries were necessarily fatal within a short time, and at the most the operation hastened an inevitable death. In three in which the injuries were multiple (six, six, and five perforations), but limited to the intestine, it failed to save; and in these the probability of recovery without operation turns entirely upon the trustworthiness of the diagnosis in other cases which appear thus to have recovered. In one (wound of the liver alone by a small ball) the chance of recovery without operation was good; and in another the chance would probably have been better if the first exploration had been carried far enough to detect the wound of the bowels, and if the second had been limited to providing a free escape for the extravasated fæces. Of the nature of the injuries in the remaining case nothing is known.

Against the three recoveries is to be offset, then, one death, probably due to the operation, and the question remains whether or not the percentage of recovery under non-operative treatment justifies the belief that it would have furnished two recoveries from among the remaining twelve. My conviction is that at least seven of the twelve would certainly have died.

Corroborative evidence of a better prognosis under non-operative treatment has been recently supplied by Reclus,* in the recovery of three patients treated with opium and compression of the abdomen, and by a military surgeon, Dr. Nimier,† who has reported the results in 63 cases of penetrating wounds received by French soldiers in Tonquin, with only 53 deaths, a mortality of 78 per cent. His analysis has been criticised by Chauvel, who maintains that in 4 of the 15 cases recovery is not proved, and that in 27 of the fatal cases the survival was sufficiently long to justify the opinion that they might have been saved by operation.

Turning now from these details to general considerations, the facts relating to the pathology of these injuries can be briefly stated. When a bullet penetrates the abdominal cavity it usually causes multiple lesions of the viscera, the principal exception being when it is a small one and first encounters the liver, in which case it may lodge within that organ. It has long been a subject of dispute whether or not a bullet can traverse the cavity without wounding the viscera, but the possibility must now be conceded on the strength of a very few cases in which an

* St.-Laurens, "Thèse de Paris," No. 118, 1888.

† Nimier, "Bull. de la soc. de chir.," 1887, p. 281.

autopsy has proved both the fact of penetration and the absence of injury to the viscera.*

In several cases a ball has perforated the abdominal wall obliquely, cutting the parietal peritonæum for a greater or less distance between its orifices of entrance and exit, but not opening the intestine, and it seems probable that most of the cases of alleged complete perforation without visceral injury or of circuitous passage within the substance of the wall between two points separated by a considerable interval have been of this character, the apparent deflection being due to a change in the attitude of the patient, or to the comparatively slow motion of the ball, which permits the fasciæ to be pushed aside instead of being perforated. Certain it is that, even if it is possible for a bullet to traverse the cavity without wounding the intestines encountered in its passage, the occurrence is far too rare to have any weight in prognosis or treatment, and we may safely assume that any ball that has fairly entered the abdominal cavity has also wounded some of the viscera; while, on the other hand, the more oblique the track of the ball, the greater the probability of the escape of the viscera from injury, even if the peritoneal cavity has been opened. It sometimes happens that the intestine, if not perforated, is so bruised by the bullet that the contused part sloughs and an opening is formed, if the patient survives for a sufficient length of time.

The number of openings made in the stomach and intestines by a single ball has varied from 1 to 28 in observed cases, the average lying between 2.63 (Colonel Otis) and 5 (Reclus, in experiments upon animals). The size of the openings, while corresponding in a measure with that of the bullet, is yet so seriously affected by other circumstances that no favorable prognostic influence can be safely drawn from the small size of the ball. Thus, in Koehler's case, a .22-caliber ball made an opening in the stomach one centimetre and a half in diameter, the increase in size being probably due to retraction of the divided muscular fibers; in others a small ball, by entering obliquely or by cutting along the convexity of a loop of intestine, has made an opening an inch or more in length. Sometimes the openings are even smaller than the ball that made them, the tissues being pressed apart instead of being punched out by it in its passage. In all except the smaller openings there is a marked tendency to eversion of the mucosa, and this may so fill the opening as greatly to hinder the escape of the contents of the bowel into the peritoneal cavity, although, on the other hand, it carries with it the possibility of direct infection by its own soiled surface. The escape of fæces into the peritoneal cavity appears generally to be slow to occur, except when the opening is large and the bowel is distended; and the same is true, so far as known, of the intestinal gases, the presence of which in the cavity has been rarely recognized except in connection with fæces.

* I can add to the cases already reported one recently received in the German Hospital, New York, in which laparotomy was done by Dr. W. Meyer. The ball entered below the apex of the heart, traversed the pleural and abdominal cavities, and lodged under the skin of the back at the left of the spine, grazing the lesser curvature of the stomach, but not opening it or wounding any other viscus.

The direct observation has been made that some fresh small openings are impervious to gas even under considerable pressure. If an opening is made at a point uncovered by peritonæum, as on the posterior aspect of the duodenum or ascending or descending colon, the gas may escape into the connective tissue and be recognized under the skin.

The bullet may lodge in the abdominal parietes or in one of the solid viscera and become encysted there without having provoked any reaction, or it may come to rest within the stomach or intestines, to be subsequently passed with the fæces; or even in the bladder, and be voided with the urine through the urethra (case of Sands, "Roosevelt Hospital, New York, Reports," vol. xv, p. 32).

The mesentery or mesocolon is frequently perforated by the bullet, and dangerous hæmorrhage may ensue.

Of the solid viscera, the liver is the one most frequently wounded; wounds inflicted by small bullets, even when they lodge within it and are left there, are capable of spontaneous cure, and, I think, are not to be deemed very dangerous; but large or lacerated ones add greatly to the gravity of the prognosis, because of the free bleeding and of the irritating effects of the bile upon the peritonæum. Associated wounds of the pancreas, spleen, and kidney occasionally occur, and are very dangerous. Wounds of various large vessels have been reported—the common iliac and renal arteries, the common iliac, portal, splenic, and renal veins.

The position of the wound on the surface of the abdominal wall bears little or no fixed relation to that of the visceral injuries, but if the direction taken by the bullet can be ascertained, some inferences, more or less important, may be drawn. A bullet entering at right angles to the surface in the epigastrium or the left hypochondrium probably wounds the stomach or the transverse colon. The sigmoid flexure may be encountered at any point to the left of and below the umbilicus. The liver will be wounded by a ball entering at any point within the hepatic area, and if the ball is small there is considerable probability that it may lodge in this organ without wounding any other. Bullets entering the back between the twelfth rib and the ilium are likely to wound the kidney or colon, but small bullets entering at this point, within three inches of the spinous processes, are likely to lodge in the wall. As the position of the loops of intestine appears not to change much within a few hours after the receipt of an injury, the search for lesions may be safely restricted to the neighborhood of the line marking the course of the ball.

So far as I know, there has been no demonstration of the details of the process by which spontaneous closure of a wound of the intestine without stercoral fistula takes place. That healing can take place, and without the aid of art, is shown by Dr. Lange's case ("Med. News," 1887, p. 630). He closed several perforations with sutures and left one untouched, because it was small and seemed to be impervious. The patient recovered. We do know, however, that the irritation of an injury excites an adhesive peritonitis in the neighborhood by which an opposing serous surface may be fixed against the opening so as to close it against the escape of fæces, and thus effectually to protect the general cavity

while a permanent cicatrix is forming in the wound. And we know, also, that, even where feces escape into the peritoneal cavity, the contamination may be prevented from becoming general by the agglutination of adjoining loops of intestine; and a channel may form between the wound in the intestine and that in the abdominal wall along which the extravasated feces will pass to the exterior, and that this channel may be permanent or temporary.

The *symptoms* may be conveniently grouped in three classes—those common to all serious injuries, those indicative of special visceral injuries, and those later ones belonging to the pathological processes excited by the injuries.

Among the first are the symptoms of shock and hæmorrhage, often so closely associated that they can not with certainty be distinguished from each other. Shock, often extreme shock, is present in a large proportion of cases, but it is also sometimes very slight or even entirely absent. It is at times unquestionably the direct result of the physical injury inflicted upon the organism, and varies directly with it; but, on the other hand, it is sometimes slight when the injury is great, and great when the injury is slight. I am convinced that it is often as much affected by extraneous conditions, notably the circumstances under which the wound has been inflicted, as it is by the extent and severity of the injuries; that it is as much emotional as physical. Thus, in injuries inflicted by accident it is usually much less than in those inflicted with homicidal intent, and it is noticeably augmented by the patient's fear that the injury is a mortal one. Some severely wounded patients have walked to the hospital almost unaided, and have shown no pallor, no quickening of the pulse, no lowering of the temperature, while in others the prostration has been extreme where the injury has been slight, or even where no injury at all has been received. A few weeks ago a man who had just been shot in a quarrel, and presented all the symptoms of marked shock, was brought to my hospital; on examination, the bullet was found to have stopped at his undershirt, not even to have broken the skin; in another, stabbed in the abdomen, the pallor, almost imperceptible pulse, and semi-unconsciousness pointed to extreme shock or overwhelming hæmorrhage; yet the weapon had not even penetrated to the abdominal cavity, and, although it had divided the circumflex ilii artery, the bleeding had not been profuse.

External hæmorrhage is habitually slight, that from the track of the bullet soon ceasing, unless the deep epigastric vessels are wounded, and in this latter case the blood flows into the cavity much more freely than to the outside. Free hæmorrhage into the cavity is slow to manifest itself externally, unless the parietal wound is large. The constitutional signs of hæmorrhage are the common ones, and, as a rule, appear as the prolongation and intensification of those of the pre-existing shock. Blood in the urine indicates a wound of the kidney or bladder; blood voided at stool, if present in any considerable amount, is evidence of a wound of the intestines, but the symptom has rarely been noted, and only as a late one; vomited blood may come from the wounded stomach or upper part of the intestine, but such vomiting may occur when there has been no perforation of either stomach or intestine.

Vomiting immediately after the accident is common, and is evidence only of the moral or physical shock; but its persistence or return indicates the beginning of a peritoneal reaction, either peritonitis or that form of septicæmia described by Verhère, and to which he gave the name *septicémie intestino-péritonéale*—an affection distinguishable from peritonitis by its slight elevation of temperature and slight abdominal tenderness and meteorism, and later by the clouding of the intelligence and the facies of a profound intoxication.

The signs of perforation of the stomach or the intestine are of the utmost importance in the diagnosis and the prognosis, but, unfortunately, they are rare and inconstant. One has been already mentioned—blood in the stools or in the vomit. Another is the escape of the liquid or gaseous contents of the bowel, and their recognition at the parietal wound or within the abdominal cavity, if the exploration is carried so far. This escape into the cavity is infrequent in the early stages, and is practically limited to those cases in which the intestinal wound is large, and in which the bowel is distended at the time of the accident; and its recognition at the cutaneous wound is very rare, being restricted to those cases in which the parietes are thin and the opening in them large. Occasionally the intestinal gases escape into the abdominal cavity in sufficient amount for their presence to be shown by the resultant loss of the area of hepatic dullness; but the cases in which this evidence can be obtained are extremely infrequent. On the other hand, resonant distension of the abdomen is common after the lapse of a few hours, and has long been deemed evidence of a probable perforation. Although authors are not agreed upon its explanation, it certainly is commonly due, not to free gas in the abdominal cavity, but, on the contrary, to distension by gas of the intestinal loops, and the explanation of this rapidly occurring distension is yet to be found. In one of my cases it was noted that the intestines, which were contracted when the abdomen was opened in the course of the operation, promptly became largely distended during the search for and the suturing of the wounds—a change which I attributed to the irritation of the handling and exposure. If this explanation is correct, it suggests a similar cause for the distension which follows injury. In two or three reported cases in which the bowel had been wounded at a point where it was uncovered by peritonæum, the intestinal gas escaped into the connective tissue, and was recognized by emphysematous crackling under the skin in the loins. Erichsen noted this symptom about twenty years ago, but, so far as I know, it has since been observed in only one additional case. Attention has been called to the possible existence of similar emphysematous crackling about the parietal wound, produced by the infiltration of intestinal gas after its escape into the peritoneal cavity, but the symptom does not appear to have been clinically noted in more than a single case; and, in view of the fact that it may possibly be produced by the entrance of the external air through the cutaneous opening, its presence can not, I think, be accepted as proof of the existence of a wound of the intestine.

In a few cases a thin liquid has escaped freely through

the parietal wound, sometimes with a faecal odor or a slight recognizable admixture of faeces, and sometimes with a color suggesting the admixture of bile; it appears to be mainly a peritoneal liquid, having its origin either in a pre-existing dropsy or in a peritonitis excited by the traumatism.

The course and the prognosis of the injury have been indicated in what has preceded; they may be briefly summarized as follows: In the great majority of cases the course is toward a fatal termination by shock, hæmorrhage, peritonitis, and septicæmia. Death by shock and hæmorrhage follows promptly—usually within a few hours. As between peritonitis and septicæmia, death by the latter seems much the more common, although there may be some limited peritonitis associated with it. It has long been recognized that intestinal lesions, with or without recognizable escape of the contents of the bowel into the peritoneal cavity, lead to death with a train of symptoms which are not those of a frank suppurative peritonitis, and have been described under various names, such as peritonism, latent peritonitis, or the asthenic form of acute peritonitis. It has been described in detail quite recently by Verchère,* under the name of *intestino-peritoneal septicæmia*, and seems to deserve a place in our nosological schedule as a pathological entity with distinctive characteristics and requiring special treatment. Its origin is attributed to the infection of the peritoneal cavity by intestinal gases or microbes that have escaped either through an opening or by transudation through the unbroken intestinal wall, and by this is set up a fermentation which produces ptomaines, whose absorption is the immediate cause of the poisoning. Attempts to isolate these ptomaines have not yet been successful. At the autopsy there is found but a slight redness of the peritonæum, or possibly at one or more points a distinct inflammation, and sometimes a brown fætid effusion; the intestines are distended, and decomposition advances rapidly. The clinical features are a prompt and marked meteorism; painlessness of the abdomen, both spontaneous and on pressure, except for that which is due to the wound of the parietes when present; a normal, subnormal, or but slightly elevated temperature until shortly before death, when it rises rapidly; a small, rapid pulse; anorexia, thirst, nausea, and even vomiting of faecal-like matter; and a marked alteration of the expression. Its course may be marked during the first three or four days only by constipation, anorexia, and meteorism; then the severer symptoms appear, and death follows in from five to twelve days from the beginning. A well-marked case came under my observation at the New York Hospital in December, 1888—a stab-wound of the abdomen, which I treated by laparotomy and suture of four wounds of the intestine; the patient survived for a week, and until the last twenty-four hours I was hopeful of his recovery; at the autopsy the intestinal wounds were found completely healed, and there was slight peritonitis at only two points. I believe the best treatment is to be found in drainage of the peritoneal cavity, or possibly in free purgation if that can be effected.

In some of the patients that survive, a stercoral fistula is

established and persists for a longer or shorter time, perhaps indefinitely or until closed by operation; in others, after a day or two of anxiety, because of the threatening of peritonitis, the symptoms subside and the patient goes on to a complete recovery. Occasionally this progress toward recovery is abruptly interrupted by the intercurrent of an acute peritonitis, due apparently to the tardy escape of faeces through a wound of the bowel, or through the opening created by the sloughing of a contused portion, or to the leakage into the peritoneal cavity of pus that has formed in the track of the bullet through the abdominal wall.

It is not surprising, in view of the facts above stated concerning the mortality and the character of the lesions, that the opinion should be widely held that a resort to laparotomy is imperatively demanded in any case of penetrating gunshot wound of the abdomen. Not only has it been generally taught and believed that recovery under non-operative treatment is so rare that the fact of recovery is almost to be deemed a proof that the intestine has not been wounded, but also the very existence of a communication between the interior of the intestine and the peritoneal cavity creates a condition of probable infection which we have learned to recognize as a grave danger, and to the prevention of which all our efforts are now directed. While the statistics which I have collected indicate, to my mind, that the mortality under non-operative treatment has been considerably overestimated, yet few, I think, who were cognizant of the facts would be willing to take their chances under it if they believed that laparotomy held out even an equal prospect of success. Unfortunately, the chances of error in the statistics at present at command are so great that the question can not be thus determined, and it seems unlikely that the doubt cast upon the diagnosis in almost all cases of recovery without operation will ever be entirely removed; we must therefore still be guided by general considerations.

The first question in every case—one upon the affirmative answer to which all other questions turn—is whether or not the bullet has entered the peritoneal cavity. As has been above shown, the cases in which the bullet has entered the cavity without wounding the alimentary canal are so few that the possibility of its escape from injury in any given case of penetration may properly be disregarded. From this I would except only those cases in which a small bullet has entered at such a point and in such a direction that its course must lie for a considerable distance in the substance of the liver, and those in which the ball has traversed the abdominal wall very obliquely. In view of the fact that this opinion is almost universally held, it seems somewhat singular that so much attention should have been paid to the means of recognizing a wound of the intestines. It is sufficient as a first step to prove the fact of penetration; and this can be readily done by a measure which not only involves no additional risk, but may even be properly deemed salutary. I refer to a free incision along the track of the bullet. It has occasionally happened that the surgeon has not been able thus to follow the course of the ball, but I am convinced that in the great majority of cases it can be successfully done if the incision is deepened carefully and a close watch is kept for the slit-like opening which the bul-

* Verchère, "Revue de chirurgie," 1888, p. 559.

let usually makes in a strong fascia. If the search fails, I see no great objection to a small incision near the wound, preferably in the median line, for the purpose either of recognizing the presence of blood in the abdominal cavity, or of introducing the finger to feel for the opening made by the bullet in the parietal peritonæum. I have employed this measure several times in stab-wounds, and never with an ill result. Such a free incision along the track of the bullet is not only valuable as a means of diagnosis, but is also an important aid in the proper treatment of the parietal wound, for it favors the removal of foreign bodies that may have lodged in the track, and, by securing efficient drainage, protects the peritoneal cavity from infection by pus that may form in the parietal wound.

I hold the opinion strongly that this exploration should be made in every case of doubtful penetration, even if no further operative treatment is to be undertaken, for it is only by having first clearly established the fact of penetration that the non-operative treatment can gain the credit of its successes and perhaps show its superiority.

As soon as the wound in the parietal peritonæum has been thus demonstrated and exposed, the escape through it of blood, intestinal gas, or fæces may at once prove the existence of an important internal hæmorrhage or of a wound of the bowel; and if there should be no such escape, the introduction of a sponge upon a holder may furnish the evidence. In the absence of positive proof of the existence of a wound of the stomach or intestine, the surgeon who proposes to close such a wound, if present, has his choice of several procedures. He may seek for the wound by direct examination of the viscera, either through his first incision, after having enlarged it, or through another made in the median line for the purpose; or he may seek to demonstrate its existence and to be guided to its position by injecting gas into the bowel through the anus, as proposed by Senn.

This insufflation of hydrogen gas or of atmospheric air under moderate pressure has been studied experimentally, and has been actually employed in practice in some eight or ten reported cases. It is asserted that its action is prompt, efficient, and free from danger, and that by its aid, in at least one case, a perforation was found which would certainly have been otherwise overlooked. Two main objections at once suggest themselves: first, that the resultant distension of the bowel may prove a serious obstacle to the closing of the parietal incision; and, second, that the escaping gas may force out the liquid or gaseous contents of the intestine into the peritoneal cavity, and thus cause a dangerous infection. It is maintained that the first objection does not arise in practice, and that the gas or air is rapidly absorbed by the intestinal mucosa; but in a recent report of two cases by Dr. H. C. Dalton, of St. Louis ("Weekly Medical Review," Sept. 28, 1889), the distension is said to have constituted a very serious trouble, leading to the tearing out of the intestinal sutures in one case, and greatly interfering with respiration in the other, in which laparotomy was not done. Dr. Dalton further states that Dr. Senn told him he had himself experienced the same difficulty, but had been able to overcome it by elevating the hips (presumably

with a tube or cylindrical speculum in the anus) and making pressure upon the intestines with "a large funnel-shaped towel." In view of this evidence and of Dr. Senn's admission, it must be held, I think, that the objection is better founded than the statements heretofore published have led us to suppose.

As to the second objection—the danger of infection by the contents of the bowel forced out by the gas—it does not seem to be capable of direct proof or disproof; that is, if fæces were found in the peritoneal cavity after the insufflation, it could not be known that they had not previously escaped; and the possible causes of infection are so numerous that if it should ensue it could not be attributed with certainty to the insufflation. A comparison of the frequency of infection in a large number of cases in which the test had been employed with that in a similar number in which it had not been used might throw some light upon the question.*

Another theoretical objection to the test—that the gas might fail to escape through an existing perforation, and that consequently its negative evidence was not trustworthy—has also been proved by experience to be well founded. In Dr. Dalton's second case the test gave no evidence of perforation, but the post-mortem disclosed two large openings in the stomach covered by semi-solid food; and in another case, above referred to, it was observed that intestinal gas could not be forced out by pressure through a visible perforation.

Finally, other lesions than perforation of the intestine are possible and equally in need of operative treatment, to which the test of insufflation gives no clew, notably hæmorrhage, and here again its negative evidence would not justify abstention. In short, I believe the method, as a preliminary to operation and as a means of diagnosis, to be distinctly inferior to an exploratory incision in facility, efficiency, and security.

The penetration having been demonstrated and an operation determined upon, the surgeon has to choose between an incision in the median line and one passing through the bullet wound. The preference has usually been given to the former, but those who have employed the other do not appear to have found any unusual difficulty in completing the operation. In one case in which the incision was made along the outer border of the rectus, a second incision was carried transversely from the upper end of the first along the free border of the ribs, giving very free access to the abdominal cavity. The patient recovered; but so large an incision is to be deprecated. Two methods of searching for wounds of the small intestine have been employed; in one, the bowels are freely exposed or turned out through a relatively large incision; in the other, only a small portion is drawn out at a time through a small incision and immediately returned after examination. I think the former method is to be preferred for several reasons: the larger incision does not in itself add materially to the danger, less time is required, the exposure of the intestines, if they are properly

* Insufflation has been done in nine reported cases with eight deaths. For brief details of seven cases, see a paper by Burrell in the "Boston Med. and Surg. Journal," July 25, 1889.

protected, is not much increased, and the search can be more readily extended to their fixed portions if desirable. Moreover, the manipulations needed for the repair of other injuries than those of the movable parts of the small intestine require a fairly large incision.

There seems to be no reason to doubt that the ball pursues a straight course through the abdominal cavity, and consequently it is not desirable to spend time or enlarge the incision in order to examine portions of the viscera or wall that lie well outside of that course; as the coils of the small intestine may shift their position, the examination should, however, cover the entire length of its movable portion in every case, and also the sigmoid flexure if the wound is on the left side, and the central part of the transverse colon if it is near the umbilicus.

Time will not permit discussion of the various methods of closing wounds of the intestine, and I shall therefore only add that experience has shown that a single row of Lembert sutures of fine silk is sufficient in all wounds of moderate size. If the wound is large and ragged, and especially if two or more such are near each other, it is better to excise the corresponding portion, and either reunite the divided ends or establish a lateral anastomosis. Since Dr. Senn reintroduced this method and so greatly improved it by his invention of absorbable bone plates, experience has shown its efficiency and ease and rapidity of execution. Possibly the independent and, perhaps, somewhat earlier suggestion of the French surgeons* to use plates of cartilage or catgut rings to reunite the divided intestine end to end may prove equally practicable and safe, but at present lateral anastomosis is to be deemed preferable.

In consideration of the fact that death is so frequently caused by septicæmia, I think a drainage-tube should always be used, in order that the peritoneal effusion may escape as rapidly as possible, and that thus the chances of fatal absorption may be reduced.

It is greatly to be regretted that the anticipated improvement in results to be obtained by laparotomy under antiseptic protection should not yet have been realized, but, notwithstanding the unfavorable showing of the statistics at present, I believe that the operation will not only make a better record in the future by a closer selection of cases in which it shall be resorted to, but also that it will show an actual gain in the saving of life, as the result of an earlier and better performance. The tabulation of statistics, according to the length of the interval that has elapsed between the receipt of the injury and the performance of the operation, has unmistakably shown that the chances of success diminish almost to disappearance as this interval lengthens. The cause thereof seems very clear. The patient has to recover not only from his injury and his operation, but also usually from an already established peritonitis or septicæmia, and experience has clearly proved that the dangers of the laparotomy itself are vastly increased when it is undertaken in the presence of such a complication. The simple exposure of the congested and distended intestines creates a dangerous shock, and when to this are added the

greater difficulties and the necessary prolongation of the operation and the dangers arising from the already established infection, it is not surprising that the result should be so uniformly and so promptly fatal. These are the patients who die upon the table or shortly after their removal from it, and this is the side, I think, upon which we should first restrict the operation. Between the two parties—those who would operate in every case and those who would operate in none—stands a third: those who would operate only after symptoms indicative of dangerous processes have appeared; but I believe this course to be the worst of all, and that if it were generally followed it would lead to the entire abandonment of the operation. We know that an individual in fairly good general health can have his abdomen opened and explored without very great risk, and one who has just received an abdominal wound not necessarily fatal ought, at the moment and for a short time thereafter, to be able to bear such an exploration almost equally well. In such a case the risks of the operation, when performed under proper safeguards, are, I believe, less than those of the injury which the bullet has probably inflicted, and it is in such cases, notwithstanding the record, that I believe the operation is capable of furnishing valuable and superior results. If, on the other hand, several hours, perhaps a day, have passed and the patient is doing well, it may be better to accept the indication that the injury is not severe and is capable of spontaneous cure, and to abstain from interference. But when several hours have passed and the condition of the patient has changed greatly for the worse, and especially if the abdomen is largely distended and painful, then I believe we should abstain from an attempt to seek and close the perforations. It is urged against such abstinence that the case is hopeless without it; it may be so, but I believe it is still more certainly hopeless with it, and to operate under such circumstances seems to me needlessly to compromise our art and to create a harmful prejudice against a resort to the operation under more favorable conditions. Must we then stand idly by and let the patient make his struggle for life unaided? Possibly, if the limitations of our art require it. But between non-interference and the full operation there may lie a middle course, by which the desperate chances of these unfortunates may be somewhat bettered. We have seen that a few such have survived without operation, the fæces and the peritoneal pus escaping through the parietal wound, and perhaps leading to the establishment of a stercoral fistula. Is it not possible that this way of escape may be made easier, that an enlargement of the bullet-wound and drainage of the peritoneal cavity may save some who could not survive a more formal operation? Slight as the chance may be, it seems to me to be the only one we can offer to such patients. In conclusion, I offer the following:

Summary of the Points to which I have sought especially to call Attention.—The (incomplete) hospital statistics of New York city show, for an average period of ten or twelve years previous to 1885, 17 cases of recovery under non-operative treatment after gunshot wound of the abdomen supposed to be perforating. The integral statistics of three hospitals—the New York, Chambers Street, and Roosevelt

* Michaux, "Gaz. des hôpitaux," Aug. 13, 1887, p. 805.

—contain 23 cases, with 15 deaths—a mortality of 65 per cent.

The integral statistics of New York city since 1884 give 29 cases of laparotomy for gunshot wound of the abdomen, with 25 deaths—a mortality of 86.2 per cent.; and the statistics of the three hospitals above mentioned give 16 cases, with 13 deaths—a mortality of 81.2 per cent.

In view of the apparently greater mortality after operation, it is highly desirable that any doubt as to the correctness of the diagnosis in cases recovering without operation should in the future be avoided if possible, and that with this object the track of the bullet should be traced to the abdominal cavity.

Preliminary incision along the track of the bullet, or, in case of need, in the median line, is the best and safest means at our disposal to recognize the presence or absence of wounds of the viscera.

The relations between the number and severity of the visceral lesions and the size of the bullet, or the early symptoms, are not, in the majority of cases, sufficiently constant to guide us in the choice between operating and not operating.

An improvement in the results of operative treatment may be expected if the operations are undertaken earlier (before the intercurrent of peritonitis or septicæmia), and if their duration is shortened by rapidity of execution and by restriction of the search for lesions to the readily accessible portions of the intestine and to the probable course of the ball. While some may die through the overlooking of a perforation, fewer, I think, will be killed by the operation.

In cases in which considerable time has elapsed since the receipt of the injury and in which the symptoms of septicæmia or peritonitis are present, with marked distension of the abdomen, an attempt to discover and close the perforations of the intestine will almost certainly be fatal, and operative interference should be restricted to the establishment of free drainage of the abdominal cavity through the wound.

In cases seen at an earlier period and in which these grave symptoms have not been developed, the probable chances of success are sufficient to justify an operation to repair the injuries.

In the present state of our knowledge it can not be said that either interference or non-interference should be the rule of practice, and the surgeon may be guided by his own convictions and feelings, whether they lead him to seek to do as much good or only as little harm as possible.

NOTE.—Since the foregoing paper was read I have learned that I failed to recognize as a New York case a successful one reported by Dr. Manley in the "Medical News" for September 24, 1887. The addition raises the list to 30 cases with 25 deaths, a mortality of 83.33 per cent. Three days after the paper was read, on October 20th, I operated in another case which has progressed to the present time, the tenth day, without an unfavorable incident, so that the patient may fairly be deemed out of danger. He is a man, thirty-two years old, who was shot by a policeman with a revolver of .38 caliber, the ball entering four inches and a quarter below the umbilicus and one inch and a half to the right of the median line. The operation was done five hours after the receipt of the injury. There was some escape of feces into

the abdominal cavity, with beginning peritonitis. Two large ragged openings, closely adjoining each other, in the lower part of the ileum were closed with a single row of Lembert sutures. It is interesting to note that the wounds were separated by a bridge of tissue only an eighth of an inch wide, and evidently had been made by the ball passing along the side of the intestine in the furrow of a sharp bend, on each side of which it cut out a piece without itself entering the lumen of the bowel. I purpose to report the case in full in due time. Accepting it as successful raises the New York city list to 31 cases with 25 deaths, a mortality of 80.64 per cent.

34 EAST THIRTY-THIRD STREET, October 29, 1889.

GASTROSTOMY

FOR NON-MALIGNANT ORGANIC STRICTURE OF THE
ŒSOPHAGUS.

By J. C. CLARK, M. D.,
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STRICTURE of the œsophagus due to cicatricial contraction caused by swallowing of caustic alkali or acid is so rare that it is seldom a case is seen in the general hospitals of our largest cities, and when the patients do present themselves it is at a time that little can be done to relieve them.

A young woman recently entered the Olean Hospital suffering from the above-described condition, whose future, unless relieved, was slow starvation in the charitable institution of the county. She depended entirely upon her work for a living, and, being unable to take nourishment enough to keep up her strength, had finally to stop and depend upon friends to support her. After the operation of gastrostomy was decided upon the important question arose: how much of an invalid would she be if the operation proved successful?

My object in this article is, first, to report the case; second, to give more details of after-treatment; and finally, to answer the above-given question. Two important elements were favorable for recovery—first, the age of patient, and the fact that she was not in an extremely enfeebled and emaciated condition. Dr. Lewis A. Stimson, of New York, says ("Reference Hand-book of the Medical Sciences"): "In several of the successful cases, it is noted that the obstruction was not complete, and that the patient was nourished by the mouth up to the time of the operation. . . . If the operation is done at all, it should be done as early as is practicable."

History.—Nellie P., aged twenty, single, native of the United States, servant girl, admitted to Olean Hospital July 22, 1889. The patient gave the following history: In September, 1888, she took two swallows of strong washing fluid, producing severe inflammation of the mouth, pharynx, œsophagus, and stomach. Since that time for ten months she has not been able to swallow any solid food whatever, and when taking fluids can feel them stop and then trickle into the stomach. She has attacks daily, and sometimes several times during the day, of great difficulty in breathing, and is only relieved by vomiting whatever has last been taken and a large quantity of ropy saliva. She sustains life with milk, beef-tea, and whisky, taking half a pint of whisky daily. Does not drink her food, but sips it slowly from a teaspoon. Has lost strength rapidly during the past three months, and is considerably emaciated.

Examination.—Œsophageal bougies, of large, medium, and small caliber, being passed, all meet obstruction at eleven inches

and a half from the incisor teeth. They cause some irritation, but no blood is vomited. The heart and blood-vessels being found normal, a diagnosis of non-malignant organic stricture of the œsophagus, four to five inches above the cardiac orifice of the stomach, with dilatation above the stricture, was made.

One week after admission the patient had several attacks of spasm of the glottis, and for twelve hours nothing would pass the stricture. From morning till night patient was to be seen with a tumbler of milk and a teaspoon continually feeding to satisfy her hunger.

August 5th.—Patient has lost ground during the last few days; has attacks of vomiting and spasm of the glottis every day. Rectal alimentation commenced to-day.

10th.—A moderate attack of amygdalitis during the week. All right again. Rectal feeding working perfectly; absorbs a pint and a half of peptonized milk and an ounce of Cibyl's beef-juice daily.

14th, Operation.—Antiseptic precautions used. The usual incision was made through the skin and muscles. When the peritonæum was opened, the greater curvature presented itself in the wound. The stomach was drawn downward and from the left and two long silk ligatures one inch apart, one above the other, were passed through to the mucous coat and used during the operation and for a month after as a guide to the wall of the stomach. Horse-hair drainage was used between the skin and peritonæum upon each side.

Iron-dyed silk was used to unite the stomach to the peritoneal surfaces. The upper and lower angles of the wound were closed loosely with silk, and the wound was dressed antiseptically. The operation was commenced with cocaine, but its use was found not practicable. Ether not acting well, chloroform was given.

15th.—No vomiting after operation. At 7 A. M., temperature 100·5° F., pulse 90. Tinct. opii deod., gtt. xx, every four hours by the rectum.

16th.—At 7 A. M., temperature normal, pulse 88. Rectal feeding working well; a quart of milk and six drachms of Cibyl's beef-juice daily. At 4 P. M., temperature 101° F., pulse 98. Complains of pain in the wound. Dressings removed. No pus. The opening into peritoneal cavity was found closed by adhesions between the opposing surfaces. The sutures between the skin and the peritonæum were partially removed because of great tension, giving immediate relief to the patient.

Having secured deep union at the upper and lower angles of the wound, and there being no reason for opening the stomach for some days, I determined to allow the skin and superficial part of the wound at these points to heal by granulation, so that the contraction of the scar would give a snug fit and grasp the proposed tube tightly. The sutures were removed at the angles, and the skin was allowed to separate.

At 9 P. M., temperature normal, pulse 88.

18th.—Temperature continues normal. The patient was given two cups of thin chicken-broth to-day by the mouth, with no unfavorable result.

Opium stopped.

25th.—The patient continues to improve. Nourishment pushed; takes a quart of milk by the mouth, and a quart by the rectum; swallows better than she did before the operation.

To-day, the eleventh after the operation, an incision was made into the stomach, between two silk ligatures, large enough to allow a glass tube of the size of a lead-pencil to be introduced, producing no symptoms.

September 2d.—The permanent tube, furnished by Messrs. Stollmann, Pfarre, & Co., was put into the stomach to-day, and the patient commenced eating solid food.

The tube is of silver, with a caliber of a third of an inch,

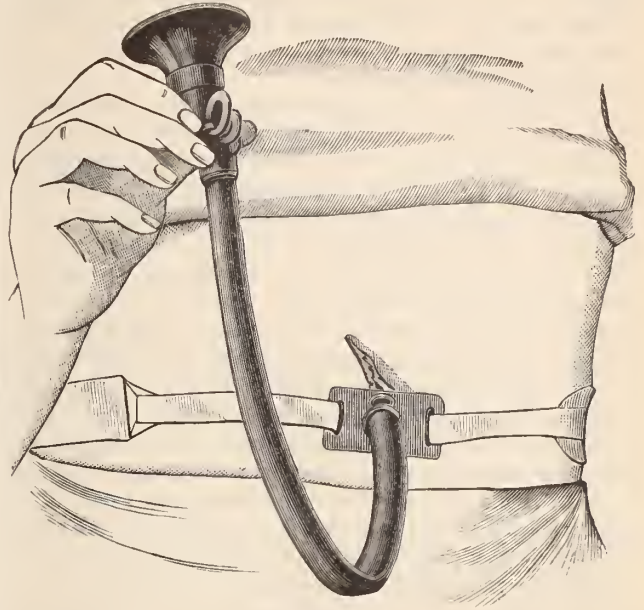


FIG. 1.

two inches long, with a flange half an inch from the outer end; straight except at the inner end, where it makes a slight curve. It was introduced by removing the glass tube and dilating the



FIG. 2.

small opening into the stomach by means of a Hanks's uterine dilator. A soft, flexible rubber tube, with a caliber of half an inch, was connected to the silver tube, a hard-rubber mouth-piece being fitted to the outer end. The silver tube was first

kept in place by an ordinary piece of tape; but the patient would eat so heartily that the tape became uncomfortably tight after meals, and required to be let out.

On September 18th she went to bed, neglecting to tighten the tape, and awoke in the morning to find the tube entirely out of the stomach. It was necessary to use the dilator again before the tube could be reintroduced, and this complication was overcome by using elastic webbing with the tape, which allows of free distension of the stomach.

An attempt was made to pass a bougie from the stomach upward, but was not successful.

There is and has been no leakage at the side of the tube, and, after a few days' practice, there was no trouble from air entering the stomach while eating, or from swallowing solid particles of food while chewing them. There is no trouble whatever in the food passing into the stomach after mastication, there being no valves or complicated apparatus to get out of order. This method of feeding is simplicity itself. After eating, the rubber tube is doubled up, tied, and put into a pocket provided for that purpose upon the inside of the dress.

At night the patient removes the rubber tube, corking up the silver tube, and connects them again in the morning without assistance.

30th.—The patient left the hospital to-day, having gained twenty-five pounds in weight, and, instead of terminating a miserable existence in some charitable institution, returns to her usual duties in perfect health.

THE BLUNT CURETTE IN UTERINE HÆMORRHAGE.

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In a paper read at Newport, June 27th, Dr. Georges Apostoli, of Paris, in lauding the use of electricity in uterine affections, remarked that the curette had fallen into desuetude in France, the place of its birth, and he intimated that the doctor of to-day who still stuck to its use had not kept pace with the advance of gynæcological science.

That electricity is an important agent in the treatment of uterine troubles no one denies, and we are chiefly indebted to the care, industry, and perseverance of Dr. Apostoli for our present knowledge of its therapeutic value; but it is not applicable in all cases where the curette can be used, and in some where its application is suitable it gives no better and not as rapid results. The use of the curette is best limited to those troubles arising from disease of the endometrium, while that of electricity should be limited to those affections arising from disease of the parenchyma or the appendages of the uterus. Each of these fields overlaps the other to some extent, and here either agent can be used indifferently.

The bleeding caused by fibroids of the uterus can be arrested by the curette, but we do not get the diminution in the size of the fibroid that is obtained by the use of electricity. Metrorrhagia, due to degeneration of the endometrium, may be cured by electricity, but it takes more time and the results are not more satisfactory than those given by the curette. But the curette is as inapplicable in salpingo-ovaritis as is electricity in uterine polypi. The field of each is pretty sharply defined, and the closer each

agent is confined to its own sphere, the better will be the results obtained.

The present tendency in America seems to be to ignore the blunt curette in all cases where the sharp curette can be used. This is bad practice, for denuding the uterus of all of its mucous membrane is no small matter, and with the sharp curette this can be done not only where the membrane is diseased, but also where it is healthy. With the blunt curette, however, it is only the diseased portion of the membrane that can be removed, while the uterine glands are emptied of their contents. Where we wish to remove a small piece of the endometrium for diagnostic purposes we find nothing to take the place of the sharp spoon; and in intra-uterine growths of long standing, where the bases are broad and firm, the sharp curette will be found to be indispensable. When, however, we have to deal with growths of recent formation, as in the case of retained placenta or placental polypi, or where we have a degenerated condition of the mucous membrane, all that is necessary can be removed by the blunt curette, after which a strong styptic should be applied to arrest the bleeding and produce a healthy action on the endometrium.

Practically speaking, all diseases of the endometrium in which the blunt curette is applicable have the one common manifestation of hæmorrhage. This may be constant or periodical, profuse or moderate, and from various causes, which can be best illustrated by giving the histories of a few typical cases. It will be best, however, to say first a few words about the use of antiseptics and the dilatation of the uterus. Bearing in mind the direct communication between the uterine and abdominal cavities, and how richly supplied the uterus is with absorbent vessels, the greatest care should be used in all operations on that organ to prevent infection. The vagina should be thoroughly cleansed before all operations on the endometrium, and both uterus and vagina after. This can be done by solutions of permanganate of potassium, carbolic acid, corrosive sublimate, or creolin. Of these, creolin is probably the best, though I have got excellent results from the solution of the permanganate, as I have also done from simple hot water. For all operations on the uterine cavity a dilatation of the cervical canal is necessary. Where intra-uterine growths exist, the canal, as a rule, will be found more or less patulous, and here rapid dilatation will be found most suitable. Any of the many ingenious uterine dilators can be used for this, but I find a set of steel urethral sounds among the best. Drawing the cervix well down with a volsella, these are passed singly from the smallest to the largest, when a return to the moderate-sized ones is made, and two or more passed together till sufficient room is obtained. If the cervical canal is normal in size, or nearly so, as is generally found in degeneration of the endometrium, rapid dilatation causes too much bruising and injury to the cervix; so here it is better to dilate gradually by means of tents—laminaria, sponge, slippery elm, or tupelo. Of these, the tupelo is much the best, though requiring more time than the sponge.

Anæsthetics can be used or not as is deemed best by the operator, but in most cases, where the patient is of a

nervous temperament, their administration will be found to ward off complications. In all cases absolute rest should be enjoined for some days after the operation, for it not only prevents accidents, but it favors the return of the uterus to its normal state.

Some of the following cases were operated upon quite a while ago, but they are selected as types, showing where the blunt curette can be used:

CASE I. *Endometritis with Subinvolution.*—In November, 1879, I was called to see Mrs. M. J., twenty-six years of age, who was a resident of Baltimore. Eight months previous to that time she had had her first child, since which time she had suffered more or less from hæmorrhage. During the last month this had become so profuse that she was compelled to take her bed, and was then too feeble to be around. Examination revealed a retroverted uterus, much enlarged and tender. Sounding was exceedingly painful, and gave a depth of four inches. After the parts were thoroughly cleansed, a small sponge tent was inserted and allowed to remain for ten hours. On the removal of the first, a second tent was introduced and allowed to remain till the following morning, when it was removed, and the uterine cavity carefully examined with the finger, but nothing abnormal could be found except a softened and thickened condition of the endometrium. This was thoroughly curetted with a blunt curette, after which liq. ferri subsulph. was applied to the whole cavity. From this time on the hæmorrhage ceased, and in one month sounding gave a depth of three inches and a quarter. ❧

This case illustrates well a common class, where the trouble dates back to childbirth, and is probably due to improper care and a too early return to household duties.

CASE II. *Fleshy Mole.*—Mrs. J. B., of Columbia, Pa., sent for me to see her in September, 1880. She was twenty-nine years of age, the mother of three children, and supposed herself again pregnant. The previous April her menses failed to make their appearance, but during July and August there was a slight show of blood. When called, she seemed to be suffering from labor-pains with considerable bleeding. On examination, the uterus was found as large as the fist; its cervix was rigid, but its canal was large enough to admit the tip of the finger with difficulty. A firm, fibrous mass could be felt presenting at the internal os, and as this in no way resembled the normal product of conception, the cervix was drawn down with a volsella while the uterus was dilated with the finger. The mass was nearly as large as a hen's egg and pear-shaped, being attached by its base to the posterior wall of the uterus near its fundus. This was removed with some difficulty by the blunt curette and a solution of permanganate of potassium used to irrigate the cavity. Recovery was rapid and complete, the woman having since borne children. Though the mass presented no placental structure, it was undoubtedly the product of a blighted ovum and had probably become attached to an inflamed endometrium, thus escaping expulsion.

CASE III. *Retained Placenta and Membranes.*—In June, 1881, I was called to see Mrs. F. H., of Columbia, Pa., a multipara, who had three days before been delivered by a midwife. The cord and only part of the membranes had come away, and, as the discharge had become very offensive and there was considerable fever, I had been sent for. Before examining, the vagina was irrigated with hot water, when the uterus was slowly dilated with the fingers and the placenta found firmly attached posteriorly and above. About half of this was removed with the hand, but some portions were so firmly attached

that the blunt curette had to be used. Finally, all was removed and the cavity presented a uniformly smooth surface, after which it was irrigated with a hot solution of potass. permang. Recovery was uninterrupted, and in ten days the woman was attending to her regular duties. Prompt interference here probably saved the life of the mother, as there were marked symptoms of blood poisoning when I was called.

CASE IV. *Degeneration of the Endometrium near the Menopause.*—In December of 1881 I was called in, by her attending physician, to see Mrs. M. A., of Columbia, Pa., an invalid mother of several children. She was forty-seven years of age, and had suffered irregularly for eighteen months from metrorrhagia. During the last month the hæmorrhage had become very profuse, and, as it did not yield to internal remedies, operative interference was deemed expedient. The uterus was found to be slightly enlarged, tender to the touch, and very flaccid, but normal in all other respects. A tupelo tent was introduced, and the following day a larger one was substituted, which in twenty-four hours gave sufficient room for the finger. On examination, the endometrium was found to be thickened and soft, so that shreds of tissue could be easily removed with the finger, but no growth of any kind could be found. A teaspoonful or more of degenerated tissue was removed by the blunt curette, after which Monsel's solution was applied to the cavity. For some days there was a slight discharge of bloody water, but this ceased in a short time, and after a month the woman, though still feeble, suffered no more from hæmorrhage and was much improved in health.

CASE V. *Incomplete Abortion at about the Third Month.*—Hannah, a multipara, thirty-two years of age, presented herself at the Johanniter Hospital, in Beyrout, Syria, in November, 1887, to be treated for corneal ulceration and partial staphyloma. A solution of atropine was instilled into the eye and subsequently the portion of prolapsed iris removed. Three days later she was taken with pains and hæmorrhage from the womb, when she informed me that she thought herself about three months pregnant. The womb was found as large as the fist, with the cervix sufficiently dilated to admit the finger to the internal os. This was found partly dilated, with the uterine contents presenting. As hæmorrhage was profuse, the pains strong, and all hopes of preventing the catastrophe passed, the cervix was drawn down with a volsella, the canal rapidly dilated with the fingers, and the uterus emptied of its contents with a blunt curette. As the uterus was now well contracted, the vagina only was washed out with hot water and rest enjoined. Recovery was rapid and without complications. This is undoubtedly the best treatment to adopt in all cases of incomplete abortion, though strenuously opposed by some good authorities.

CASE VI. *Placental Polypi of Several Months' Standing.*—During March, 1889, I was called in consultation by a physician who was attending Mrs. C. P., of Baltimore. She was a multipara, some thirty-eight years of age, and had miscarried several months previous to the consultation, since which time she had suffered from bleeding, that became profuse on the least exertion, but almost ceased, to give place to leucorrhœa, when she was quiet. The uterus was several times its natural size, and the cervix was sufficiently dilated to admit the finger as far as the internal os. Rapid dilatation was undertaken and accomplished in a short time, with urethral sounds, and three polypi of moderate size were found attached to the posterior wall near the fundus. These were removed with ease by the blunt curette, the hæmorrhage arrested with Monsel's solution, and the vagina irrigated with warm water. Several hours after the operation there was a severe chill with a sharp rise of temperature, but by the next morning all bad symptoms had passed and she made a rapid and complete recovery.

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"MARASMUS" AND OTHER VAGUE CAUSES OF DEATH.

AT the last day's session of the American Public Health Association meeting, at Brooklyn, Dr. Ashmun, of Cleveland, inveighed against the practice of some physicians who employ the term "marasmus" to cover a great variety of causes of death among infants. Statistics are of little value where even a few practitioners, in any given community, consent to this vague form of certification. "Marasmus" under those circumstances has no pathological relevance, and means little more than that the child ceased to breathe. The reports of institutions are, in too many cases, robbed of their utility to the student of the causes of infantile mortality by the evasion and omission of the true causes of death. The root of this evil may lie either in indifference, in carelessness, or in a desire to conceal; but, whatever the motive, the result is one and the same so far as concerns every scientific purpose and pursuit. It was alleged at the meeting above referred to that ignorance was another occasion for this and some other mischievous forms of certification. One speaker went so far as to say that there were professors in our medical colleges whose teachings tended to promote vague pathological ideas and a slipshod use of terms. If the teacher himself has not advanced beyond the "marasmus" period in pathology, it is unreasonable to expect precision and definiteness of expression on the part of those who are taught by him. And so the evil maintains itself for years, and is spread. "The profession itself needs enlightenment" was the sentiment of more than one of the speakers on the occasion referred to; a keener intelligence on the part of the profession in these matters is a prerequisite to the profitable study of "the great American Plague"—namely, the loss of children under five years—by associations or by individuals, on the statistics of the Federal census or the annual reports of asylums or maternities.

In conformity to this sentiment, the newly appointed special committee on infant mortality in the Public Health Association was proposed to be one whose work should extend over a number of years and might not be reported upon under three years, and even then might take the form of a report of progress. One result may be expected from the initial work of the committee; that it will early show to the profession the indispensable need which exists, in regard to the profound study of this subject, that the certifying members of the profession shall truly, clearly, and fully designate the causes of death in infants as well as in adults. The Health Officer of the port of New York spoke in this discussion of the duty devolving on officers of registry, in boards of health, of refusing to accept certificates of physicians who habitually resorted to such vague ex-

pressions as marasmus, infantile asthenia, atrophy, debility, or cardiac syncope, which meant little more, to writer or to reader, than that death had taken place. This view puts upon the registry departments of our boards of health a responsibility which is altogether new to some of them, the opinion of some registrars seeming to limit them to a slavish adoption of whatever cause may be specified to them by the practitioners. We call to mind a singular instance of this where an official permitted "cholera infantum" to stand in his tables through the whole of the winter quarter, because one or more physicians had chosen to adopt that expression as synonymous with enterocolitis or infantile diarrhoea. The "throwing out" of certificates of death is not the pleasantest duty of the health officer, and, if performed without tact and judgment, may become exceedingly unpleasant, but it is nevertheless a duty that should not be shirked or overlooked.

RAILWAY SHOCK.

THE subject of railway shock has been brought very prominently before the profession and the public of late. It must be admitted that at first thought some of the results which have been rightly ascribed to it seem to be hardly traceable to this source. In an address before the Lehigh Valley Medical Association Dr. Dereum ("Therapeutic Gazette") treats of the subject in a practical way. The causation of railway shock, he says, differs from that of other forms of shock in that it is more composite. It presents, therefore, special features which distinguish it from surgical shock, common traumatic shock, and purely emotional shock. If shock may be classified under three heads—that which acts upon the corporeal organization, that which affects the psychological functions, and that which involves both of the preceding—railway shock may embrace any of these three forms. In railway accidents the trunk and head are specially subject to injury; the body as a whole may be thrown violently against surrounding objects, and the brain and spinal cord may be so shaken or bruised that degenerative processes, actual organic changes, may be set up in the nervous centers of these organs. But, even apart from serious physical injury, the purely psychic effects of a railway accident may be of the most serious nature. The incidents connected with such a disaster may, taken together, form one of the most terrible pictures that the mind can conceive of. The vastness of the destructive forces, the magnitude of the results, the imminent danger to the lives of numbers of human beings, and the hopelessness of escape from the danger give rise to emotions quite sufficient in themselves to produce shock or even death. Whether there is a temporary loss of consciousness or not, the sudden, excessive, exhausting expenditure of nervous energy in the excitement, the fright, the horror of the moment must certainly result in a general weakness more or less marked and more or less enduring.

Two cases in point are related: A powerful man is exposed in a very severe and destructive collision, but escapes with only a few bruises on the limbs and a fracture of the nasal

bones, not having been stunned. Recovering from the more immediate nervous excitement, which lasted some weeks, he remains for years afterward, perhaps for the rest of his life, haggard, depressed in mind, with occasional palpitations, with loss of sleep, bad dreams, and loss of energy and of self-control. In the second case, personally studied by Dr. Dereum, a lady of nervous temperament, but always in good health, witnessed at close quarters a shocking mutilation of her little daughter by a railroad-tie. She was standing on the platform, and the train was moving silently past her. The mother was not injured, but remained hysterical for three weeks, and then miscarried. A year afterward she was neurasthenic, depressed, melancholic, of sallow color, weak, irritable, and unable to attend to household duties. Her pulse was weak and rapid, her knee-reflexes were sluggish, her back was painful with tenderness over the lumbar region, and her grip was tremulous. Why is it that in railway accidents passengers who are dreadfully mutilated show transient or slight symptoms of shock, while others who sustain hardly any physical injury are profoundly shocked and may be rendered invalids for life? Perhaps the very depth and intensity of the bodily injury may blunt the nervous centers or preoccupy the mind, the bodily injury being generally received before the mind can fully realize what is going on.

A short space is devoted to the consideration of the so-called "erethistic" form of shock, which is to be regarded as either a preliminary or an incomplete stage of simple shock, or as a stage of imperfect reaction from simple shock. In this there is prostration with excitement. The patient tosses about, complains loudly, says he can not breathe, acts as though suffering intense agony, and has a sense of impending death. He pays no attention to his surroundings, being absorbed by his own agony. He has muscular tremor, rapid short breathing, with occasional deep inspirations, a rapid, soft pulse, a hot and dry skin, and a flushed face.

The methods of treatment mentioned by Dr. Dereum are well known to the profession. In simple shock it is better to do too little than too much. In the severer forms, dry heat to the body, lowering of the head, and the injection or ingestion of whisky or some preparation of ammonia may be required. Injections of ether are recommended, but in abdominal operations, where he has seen them applied, they have seemed to act as local irritants, the stimulant action on the heart being not through absorption of ether into the blood, but by a reflex action. In profound shock, which resists other measures, strychnine may be injected, or digitalis or atropine may be used. In the "erethistic" form, chloral, the bromides, and opium are to be avoided or used with great caution. Genuine mnsk is the best remedy, say fifteen grains by the rectum; as a substitute for it, valerian or fluid extract of hops may be given. In chronic cases rest is required, prolonged far beyond the apparent needs of the patient's condition. For neurasthenia Weir Mitchell's method is the best. A sharp lookout must be kept for symptoms of chronic inflammation of the spinal cord and for concealed disease of the vertebral column.

MINOR PARAGRAPHS.

REFLEX DISTURBANCES FROM A WISDOM TOOTH.

How small an irritation may give rise to the most painful and most widely distributed of reflex neuroses is well illustrated by a case cited in the "Deutsche Medizinal-Zeitung" from the practice of a dentist, Dr. Herrmann, of Halle. A man of forty-seven had suffered for twenty years with an intense pain which began in the frontal region, but afterward involved the whole right side of the face and neck, and ultimately resulted in periodical mental excitement accompanied by delusions. A score of doctors and the most varied remedial measures had been ineffectual in affording him relief. Finally he sought admission to an asylum, where the physicians hit upon a misplaced wisdom tooth as the probable cause of the morbid manifestations, and called in a dentist to extract it. In addition to malposition, its roots had large exostoses, as was seen upon its successful removal under chloroform narcosis. The wound healed under antiseptic precautions in two weeks, and the reflex disturbances, neurotic and psychic, gradually disappeared altogether. They have not returned in the year now elapsed since the dental operation. This cure of a psychosis by extracting a tooth is in curious contrast with the not infrequent cases of insanity set down in many of our asylum reports as due to the extraction of teeth.

"NELLY BLY" AND HER DOCTORS.

A SPRIGHTLY contributor to the "World" doubtless amused that paper's readers last Sunday by her account of visits made in rapid succession to a number of well-known New York physicians, ostensibly for headache for which she professed not to be able to assign a cause, but really, it is to be presumed, to "fake" for the article in question. Her story is thoroughly good-natured, if not in good taste, and its setting is entirely suitable. A London newspaper once remarked of a like performance in Boston that it illustrated not so much the incapability of the town's doctors as the degradation of the journal in which the account appeared. It is to be supposed that, when Miss "Nelly" really wants medical advice, she will adopt different tactics.

ARTIFICIAL EYES MADE OF CELLULOID.

THE Paris correspondent of the "Journal of the American Medical Association" mentions an intense fœtor which sometimes results from the use of celluloid artificial eyes. The odor resembles that of bromine; the material is said to contain monobromide of camphor. The writer suggests that there is a liberation of bromine under certain conditions of its contact with the tissues beneath it, and that the extraordinary odor thus arises. These artificial eyes are said to come from Germany, but the place of their manufacture is not known to the writer. Professor Gayet, of Lyons, is the observer of the facts noticed.

TYPHOID FEVER AT YALE UNIVERSITY.

THE death of three students of Yale by typhoid fever seems to indicate that a grave type of the disease has attacked that community. Fever is not an uncommon occurrence among the students in the early part of the autumn session, after which time it gradually dies out. The medical officers of the college rather expect some cases after the students rejoin their classes in the autumn, and they are in the habit of regarding it as "vacational" or imported. Commonly the type of the fever is light, and it is rarely fatal, whether the student remains in town or is conveyed to his home. The authorities of the college con-

sider the water-supply used by the students as pure and above suspicion. If the present condition of things persists, a bacteriological examination of the drinking-water and a survey along its sources will become necessary.

THE BROOKLYN HEALTH EXHIBITION.

It is proposed to keep the exhibition of sanitary appliances open until December 1st, and to give free admission to everybody interested in such displays. Being the first attempt of the kind, the undertaking has been tentative, and some things devoid of sanitary merit have been admitted, which simply help to pay expenses; but meritorious objects are to be found there, and very few persons will go there without discovering something instructive. A course of lectures will be given, at about weekly intervals, on sanitary subjects. The exhibition hall is at the junction of Fulton and Pineapple Streets, a short distance from the bridge.

THE ART OF COOKING.

MR. EDWARD ATKINSON lately spoke before the American Public Health Association on the economics of cooking. He not only gave the audience a sample of the work performed by his single-lamp-power ovens, but he gave to each person desiring it a reprint of his paper, prepared for him by the publishers of the "Popular Science Monthly," a day in advance of the regular appearance of the magazine.

"HYMEN AND ÆSCULAPIUS."

UNDER this heading a paragraph appears in the "British Medical Journal" for October 19th, which relates the fact of the marriage of the illustrious statistician, Dr. Bertillon, to a lady graduate in medicine, Mademoiselle Schultze, who had recently passed her examination for the doctorate with distinction and brilliancy. Other instances are not wanting where bright young medical women have been married to men already eminent in Parisian practice. The profession there shows an inclination to absorb them into the ranks as well by marriage as by the diploma.

A FATAL INJURY IN LAWN TENNIS.

A DEATH from injuries incurred in lawn tennis has been reported from Staten Island. The accident occurred in the course of the regular play of the game, two of the players coming violently into collision. One of them, a young lady, was knocked down and stunned, but her injuries were at first regarded as not very serious. She was injured internally, however, and death ensued in about a week after the accident.

ITEMS, ETC.

The New York Neurological Society.—At the next meeting, on Tuesday evening, the 5th inst., Dr. Ira Van Gieson will read "A Contribution to the Pathology of the Laryngeal and other Crises in Tabes," and the Commission on the Treatment of Epilepsy and Chorea by the Correction of Ocular Defects will present a report.

The late Dr. James B. Hunter.—At a meeting of the Practitioners' Society of New York, on October 4, 1889, it was *Resolved*, That the members of this society express their deep regret at the sudden and untimely death of their late colleague, Dr. James B. Hunter. They recall the fact that Dr. Hunter was one of the founders of the society, that he was its first president and always took an especial interest in the suc-

cess of its work, to which he made practical and original contributions. Dr. Hunter was esteemed for his social qualities as well as for his eminence as a physician, and in his unfortunate death the members feel a sense of great personal bereavement.

[Signed.]

W. T. BULL, }
R. F. WEIR, } *Committee.*
C. L. DANA, }

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending October 29, 1889:

DISEASES.	Week ending Oct. 22.		Week ending Oct. 29.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	58	13	42	16
Scarlet fever.....	32	4	41	4
Cerebro-spinal meningitis....	0	0	4	4
Measles.....	27	1	42	2
Diphtheria.....	79	26	80	12
Small-pox.....	0	0	1	0

The Philadelphia Polyclinic and College for Graduates in Medicine.—The ceremony of laying the corner-stone of the new hospital, with Masonic offices, has been set down for today.

The "Gazette de gynecologie."—It is announced that Dr. P. Ménière has retired from the editorship and from medical practice, on account of failing health, and that the "Gazette" will hereafter be edited by Dr. Philippeau.

The Death of Isaac E. Taylor, M. D., LL. D.—As we go to press we learn of the sudden death of Dr. Taylor, President of the Faculty of Bellevue Hospital Medical College, which occurred on the evening of Wednesday, October 30th. An appropriate notice will appear in our next issue.

Changes of Address.—Dr. John A. Fordyce, to No. 66 Park Avenue; Dr. John B. Hamilton (Washington), to No. 924 McPherson Square; Dr. Faneuil D. Weisse, to No. 46 West Twentieth Street.

Society Meetings for the Coming Week:

MONDAY, November 4th: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, November 5th: New York Obstetrical Society (private); New York Neurological Society; Elmira Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Hampden, Mass., District Medical Society (Springfield); Hudson, N. J., County Medical Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, November 6th: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, November 7th: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Medical Society of the County of Orleans (annual—Albion), N. Y.; Boston Medico-psychological

Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *November 8th*: New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); Medical Society of the Town of Saugerties.

SATURDAY, *November 9th*: Obstetrical Society of Boston (private).

Letters to the Editor.

POLITZER'S POWDER-BLOWER.

NEW YORK, *October 28, 1889.*

To the Editor of the New York Medical Journal:

SIR: Under the head of "New Inventions, etc.," in the Journal for October 26th, Dr. John O. Roe, of Rochester, describes an improved powder-blower. He has evidently overlooked an identical powder-blower, invented by Politzer and described by him in his "Treatise on Diseases of the Ear," p. 469. I have used one for a number of years, which I obtained of Reynders & Co. GORHAM BACON, M. D.

HÆMORRHAGE AFTER REMOVAL OF THE TONSILS.

SUPERIOR, NEBRASKA, *October 21, 1889.*

To the Editor of the New York Medical Journal:

SIR: I have read with much interest the paper of Charles H. Knight, M. D., viz., "Note on the Galvano-cautery in the Treatment of Hypertrophied Tonsils," in the Journal for October 12th. In speaking of serious hæmorrhage following the operation of amygdalotomy and means to check it, he says "the loop of a cold-wire snare may be applied, possibly with the aid of a transfixion needle." Since reading his paper I have thought a little personal experience in this direction might be worthy of publication. Last July I removed partially a hypertrophied tonsil of the right side from a girl aged fourteen, using Mathieu's amygdalotome. Considerable resistance was met with in drawing the knife of the instrument through it, and hæmorrhage was not marked at first, but in about fifteen minutes became alarming. Tannogallic acid, cold, and pressure were used, but still it continued increasing. The patient was in my office and handy to what few instruments I possessed, a Jarvis's snare among them, but I had not read Dr. Knight's paper, or I should have used the "loop of the cold-wire snare." But the following is what flashed through my mind and what I did do: By the assistance of a tenaculum I drew the stump toward the median line and transfixed it with a needle and passed a loop of No. 24 silver wire over it; then, by the use of Sims's shield and Wyeth's needle-holder for a wire-twisting forceps, I succeeded in bringing such a pressure upon the circumference of the stump as to check all hæmorrhage. The wire made a groove for itself, so I removed the needle and cut the wire short, and left it in position for two days, when it was removed. This was another method of using the "cold-wire loop" without the snare, and perhaps as practicable, as it was the means of allaying a great deal of excitement on the part of the parents as well as relieving a little anxiety in another direction. I learned after the operation that repeated applications of tincture of iodine had been made to the enlarged tonsil on the recommendation of another physician without appreciably diminishing its size. The hæmorrhage was from numerous arterial twigs, their mouths being kept open in all probability by the fibrous condition of the gland. Delavan, in the "Reference

Hand-book," speaks of E. W. Clark's using a strong ligature in a case at the New York Hospital. I take it that his ligature was silk, which I should think would be harder to tie in this location than a wire would be to twist. I had not received the "Hand-book" at the time I operated, but neither in it nor in Knight's paper am I able to find any reference to a ligature, silk or wire. J. S. BUTLER, M. D.

Proceedings of Societies.

MEDICAL SOCIETY OF THE COUNTY OF NEW YORK.

Eighty-fourth Annual Meeting, held on October 28, 1889.

The President, Dr. ALEXANDER S. HUNTER, in the Chair.

THE business of the evening was devoted entirely to the reception and adoption of reports by various committees, and the election of officers for the ensuing year. Considerable discussion was elicited by a clause contained in the report of the Comitia Minora. In it the committee recommended that physicians who for a period longer than two years were delinquent in the matter of fees should have their names omitted from the printed list of the society's members. Upon a vote this clause was retained, but it was explained that the names would not be withheld entirely, but would be printed in a separate list.

The treasurer's report showed a balance in hand of \$1,176.

The report of the Committee on Hygiene contained information as to many of the more glaring defects in the methods of conducting the work of the public schools, in so far as concerned the health, cleanliness, and general well-being of the pupils during school hours. The following is a list of the officers elected for the ensuing year: President, Dr. Alexander S. Hunter; vice-president, Dr. J. Leonard Corning; secretary, Dr. Charles H. Avery; assistant secretary, Dr. William E. Bullard; treasurer, Dr. John S. Warren; censors, Dr. Daniel Lewis, Dr. George H. Fox, Dr. Laurence Johnson, Dr. N. G. McMaster, and Dr. George A. Abbott; delegates to the Medical Society of the State of New York, Dr. D. H. Goodwillie, Dr. William Stevens, Dr. Albert S. Newcomb, Dr. Frank B. Carpenter, Dr. Samuel Lloyd, Dr. Peter A. Callan, Dr. Ralph Waldo, Dr. Urban G. Hitchcock, Dr. William A. Dayton, Dr. Charles A. Powers, Dr. Willy Meyer, Dr. Henry D. Chapin, Dr. George R. Elliott, Dr. John Dorning, Dr. Seneca D. Powell, Dr. Robert T. Morris, Dr. Francis Valk, Dr. David D. Jennings, Dr. William C. Jarvis, Dr. Malcolm McLean, Dr. Egbert H. Grandin, Dr. William P. Northrup, Dr. R. C. M. Page, and Dr. Robert B. Talbot.

NEW YORK STATE MEDICAL ASSOCIATION.

Sixth Annual Meeting, held in New York, September 25, 26, and 27, 1889.

The President, Dr. W. T. Lusk, of New York, in the Chair.

(Concluded from page 470.)

Forced Respirations; Additional Observations.—Dr. GEORGE E. FELL said that last year he had presented before the association his method of inducing forced respirations in the narcotized human subject. The mechanical apparatus by which he effected this consisted of a bellows, an arrangement for treating the air, and an air valve with tracheal and other connecting tubes. The object of the present paper was to set forth more definitely the encouraging results which had followed the use

of his contrivance. He reported a number of cases of opium narcosis in which breathing had been performed for the patients for periods varying from two to twenty-one hours, their lives being thereby saved.

Alcoholic Paralysis.—Dr. T. D. CROTHERS, of Hartford, Conn., read a paper with this title which went to point out the direct connection existing, in the author's opinion, between chronic alcoholism and such pathological changes in the brain as were concerned in producing many of our cases of insanity with paralysis.

Dr. E. M. MOORE said that the paper marked a new departure. Great difficulty always surrounded the incarceration of persons undoubtedly unable to control themselves in the matter of alcoholic stimulants. The condition had come to be regarded as only temporary. The author, in his paper, however, had taken a true view of the case. There might be such cerebral change as would make it impossible for the tendency to alcoholism ever to pass away in certain subjects. There would be no difficulty in controlling such people if physicians could make up their minds to designate such persons as insane. The law would be sufficient for this, and it would be an immense boon to society to be able to deal with them. He hoped this paper would be an entering wedge.

Dr. A. L. CARROLL thought that before the alcohol habit could be acquired there must exist a pre-disposing vulnerability. Thousands were never apparently injured by its use, while others would be led away by a glass of wine at dinner. While with one class drinking was a vicious propensity which might be cured by shutting them up, with another the tendency was a neurosis and beyond control. Such people would remain all right for months, and then came the neurotic craving which overmastered them, and very heart-rending cases they were.

A Few Fads.—Dr. H. D. DIDAMA, of Onondaga County, in a humorously caustic paper, touched in chronological order on many of the medical vagaries of recent times. After reviling the "blue-glass fad," he went on to speak of the sulphurated-hydrogen fad. This he characterized as an attempt to cure a dire disease with medicated wind. Consumption was, however, a disease of obstinate fixity. Its bacilli—had they not resisted carbolic acid and bed-bug poison, and grown fat upon "Rough on rats"? Even when surprised by a rear attack, they did not "silently steal away," but died at their posts. Beings of whom the world never heard before or since recorded lots of cases cured. Gas generators, at ten dollars a machine, were found in thousands of offices. And now—well, the bacilli and the scoffers wore a triumphal smile.

Some Uses of the Transfixion Ligature.—Dr. T. H. MANLEY, of New York, in this paper went deeply into the earlier and most recent methods for the control of hæmorrhage. He did not think that the management of hæmorrhage kept pace with the advance of surgery. While operating one day in the region of the great vessels for the removal of strumous glands of the right side of the neck, and while teasing out the last of these, a gush of blood occurred. Every pressure and means were used to control the bleeding, but to no purpose, and the patient soon began to show alarming symptoms. Just then the author was inspired with an idea, and seizing a needle-holder armed with needle and silk, he plunged the needle into the wound near the thyreo-hyoid membrane, carried it sufficiently low to pass under the great vessels, and then, making a sharp turn, brought the point out through the middle of the sheath of the mastoid muscle, and tied the whole mass embraced by the ligature. The condition of the veins immediately suggested that the internal jugular and common carotid artery had been tied. He then closed everything. The patient rallied fairly well. The transfixion ligature was removed

the next day, and the patient went on to an uneventful recovery and was discharged with the wound solidly healed on the tenth day. It had been gratifying to him to hit on any contrivance at a time when his patient might have bled to death. It had occurred to him that the employment of a ligature, by transfixing the parts and inclosing the nearest available and suitable point of a bleeding vessel within it, was a method which might be followed with advantage and safety. With this idea he had entered upon a series of experiments upon the cadaver and upon living animals for the purpose of demonstrating the regional topography and points of selection for the passing of ligatures, what was likely to be included in such ligatures, and the disturbed functional or the pathological result to be looked for by the temporary embrace of important vessels and nerves by ligature. He had also put the plan into successful practice whenever occasion had offered. His inferences were in favor of the method being one which should commend itself to surgeons in selected cases, and for military purposes he should deem it of great value.

A New Urethrograph.—Dr. STEWAERT exhibited a recent modification of his urethrograph and described the operation of obtaining diagrams of the general conformation of the urethral canal.

Dr. GOULEY said the instrument, while not a perfect one, was a vast improvement on any of the others.

The Bacteriology of Drinking-water.—The author, Dr. E. K. DUNHAM, commenced his paper by going fully into the principles involved and the procedures adopted in the estimation of the bacteriological element in drinking-water. He then traced the history of a given sample of water, giving some typical illustrations of the application of the principles underlying the bacteriological test of water as met with in actual practice. His conclusions were that the bacteriological examination of water alone could not, save under exceptional circumstances, furnish the data for a direct verdict as to its sanitary value.

New Hypnotics: Sulphonal, Amyl Hydrate, Hydrobromide of Hyoscine, Hypnone, Paraldehyde, and Urethane—*their Therapeutic Applications, Contra-indications, Toxicology, and Methods of Administration.*—Dr. W. H. FLINT, of New York, opened the discussion on this subject by a paper which evidenced most exhaustive research. He had collected from all the sources at command, both here and abroad, the experience, observations, and deductions from experiments with this class of new drugs. Physicians, he said, recognized natural sleep as an invaluable ally in combating disease, and regarded hypnotic medicines as among the most effective weapons of their therapeutic armamentarium. They cordially welcomed and tested new soporific remedies. The number of valuable sleep-producing medicaments had happily been augmented of late by new discoveries in the domain of synthetical chemistry, and by the utilization of certain compounds long known to science.

The object of the present discussion was to give a summary of the therapeutical applications, contra-indications, toxicology, and modes of administration, and in some cases to give the physiological action of these hypnotics with a view to throw some light upon the relative merits of the individual remedies. The writer desired to accomplish his part of the discussion by presenting a *résumé* of the most important papers on this subject which had come to his notice, adding thereto the results of his own observations. The group of somnifacients to which attention was invited comprised sulphonal, amylene hydrate, paraldehyde, urethane, and hypnone. In respect to sulphonal he could report thirty-three cases treated, with the following conclusions arrived at: That sulphonal, even in single doses of twenty or thirty grains, was in the main a safe and reliable hypnotic, free from unpleasant concomitant effects, and usually from all unde-

sirable sequelæ. The only objectionable after-effect witnessed by himself was moderate somnolence on the morning following its administration; in none of the cases was there derangement of the appetite or digestion, nor was the circulation or respiration appreciably affected. The cutaneous and renal secretions were neither increased nor diminished, and nausea, vomiting, or constipation did not follow the use of the drug. The average length of the time in which sleep ensued after the administration of sulphonal was about an hour. The average duration of the sleep was a little over six hours, and success attended the use of the drug in about 87 per cent. of all the cases. Since his early experiments with the drug had been published about a year ago, he had constantly employed it in private and hospital practice, and it had continued to favorably impress him. Reviewing his own experience and that of others, he concluded that the physiological action of sulphonal had not yet been satisfactorily established, although notable contributions on this subject had been made during the current year. Sulphonal was chiefly valuable in nervous insomnia, in some forms of insanity, notably in acute maniacal conditions, in acute sthenic febrile diseases, the opium habit, in conditions of gastric irritability, at least temporarily in neurasthenia, and in some cases of anæmia. The effects of the remedy had been generally better in his experience where the patients were strong and plethoric, and in these cases the after-effects were most frequently absent. Sulphonal was contra-indicated because of its comparative uselessness in insomnia from pain, cardiac dyspnœa, gastrectasis, congested stomach, etc. The causes of this failure in the presence of pain, cough, and dyspnœa seemed to be its slight narcotic action, and in gastrectasis, chronic gastritis, and gastric congestion its slow solubility. It seemed to be contra-indicated on account of its possible hurtful effects in great physical prostration, in acute melancholia, and in insanity after abortion, after labor, and perhaps in sclerosis and in angina pectoris. Clinically, toxic symptoms did not generally follow the use of sulphonal in adult cases until thirty grains or more had been given at one dose, or in doses quickly succeeding each other. It must, however, be conceded that small doses did sometimes act unfavorably owing to individual idiosyncrasies. The milder toxic symptoms from sulphonal were fatigue, depression, tinnitus aurium, and nausea. The writer had also seen marked pallor and œdema beneath the eyelids in several cases in patients waking from sleep after taking sulphonal.

The graver symptoms thus far reported were diarrhœa, peripheral aphasia and ptosis, a cutaneous eruption like that of rubeola or urticaria, brachycardia, inco-ordination, semi-coma, and collapse. Sulphonal should be administered by the mouth in hot beverages or in hot liquid foods an hour or more before its effects were desired. Its use by the rectum was not generally satisfactory. He would urge the necessity of employing only the pure sulphonal, as some bad results had come, no doubt, from the use of a spurious article.

There was no need for alarm at the sensational statements of some authors who had used too large doses, or had used the drug when it was contra-indicated. The dose should be carefully adjusted to the requirements and peculiarities of each case, and since the effect of a full dose was often felt on the second or third night after its administration, it was well to decrease the dose on these nights whenever the drug must be given uninterruptedly for days or weeks. He had not seen evidence yet that the sulphonal habit existed, nor had he seen any cachexia or dyscrasia which could be fairly attributed to the drug. Favorable effects had resulted in about eighty per cent. of his cases. Children took it readily and tolerated it very well.

Amylene Hydrate.—This hypnotic, the speaker said, he had

employed in thirty-eight cases of insomnia from various diseases. In these, success had resulted in sixty-seven per cent. Upon the basis of his own experience and that of the authorities, he had reached the following conclusions: The physiological action of amylen hydrate was similar to that of alcohol. In therapeutical doses it produced sleep by its soporific action on the cerebrum. In toxic doses it paralyzed the cord and medulla, finally abolishing the reflexes, arresting the respiration, and paralyzing the heart. It was applicable, therapeutically, to insomnia from nervousness, from excessive mental exertion, from anæmia, fevers, insanity, cardiac diseases, the opium habit, and from the withdrawal of narcotics that had been constantly employed. It was contra-indicated because not efficacious in insomnia from pain, cough, and often in cardiac and uræmic dyspnœa. Its use by the mouth was contra-indicated in gastric diseases attended with irritation or nausea, because of its irritating character, but it might be given by the rectum in such cases. It should not be given to fastidious patients on account of its taste and odor, and children did not generally tolerate it, for the same reason. The toxic effects from therapeutical doses were generally unimportant, consisting of headache, slight nausea, gastric distress, and thoracic oppression. Serious symptoms sometimes followed, as loss of reflexes, paralysis of the extremities, mydriasis, low temperature, feeble pulse, and superficial respiration. Amylene hydrate was best given by the mouth, in soft capsules, or in mixture, or solution, disguised by peppermint water, raspberry syrup, or extract of licorice. The mixture should be thoroughly shaken before being used in order to avoid an overdose being taken. The dose for adults was thirty to forty-five grains by the mouth and forty-five to seventy-five by the rectum. The author had never seen any cases in which an amylen hydrate habit had been engendered or a cachexia due to the remedy developed.

Paraldehyde had been used by the author in thirty-five cases of insomnia from a variety of causes for the purpose of comparing its effect with other hypnotics. The doses had varied from sixty to ninety minims. Successful results were obtained in 72 per cent. of the cases. The writer's inferences, drawn from his own studies, were as follows: The remedy in moderate therapeutical doses acted like ethyl alcohol, producing sleep by its hypnotic action on the cerebrum. This sleep was, however, preceded by a brief period of excitement, during which the reflexes were augmented. In larger doses it paralyzed the spinal cord and abolished the reflexes, finally arresting respiration by paralyzing the medulla. It also exerted a paralyzing action on the vaso-motor centers. Like amyl nitrite, it caused central myosis and stimulated intestinal peristalsis. In full doses it slowed and tranquillized the respiration. It did not notably affect the temperature, but sometimes caused a slight diaphoresis; the blood-pressure was slightly reduced by small doses, more markedly so by large ones, and the pulse was somewhat slowed. Paraldehyde did not particularly irritate the stomach. It was not yet decided whether it produced methæmoglobinæmia. The remedy was not indicated in the insomnia of acute and chronic melancholia, epileptic dementia, acute alcoholism, the opium habit, hypochondriasis, hysteria, neurasthenia, chronic gout, exhaustion from over-work, dyspnœa, or the cough of pulmonary diseases. Paraldehyde was contra-indicated in cases of cyanosis with depression of the respiratory center, as in advanced emphysema and cardiac dilatation, in painful diseases, gastric ulcer and gastritis, or in pharyngeal and laryngeal ulceration, and was to be used cautiously in anæmia, as it might reduce the oxyhæmoglobin of the blood. The milder toxic effects were headache, nausea and vomiting, vertigo, and slight cerebral congestion. In powerful toxic doses it produced deep sleep with anæsthesia, then abolition of the re-

flexes, and death from paralysis of the respiratory center. Paraldehyde might be given a long time in moderate but yet effective doses, with no harmful results. If, however, too large doses were given for a long time, tremor of the hands, œdema, anæmia, delirium, and a condition resembling chronic alcoholism might be developed. In a rabbit poisoned by relatively large doses of this drug, fatty degeneration of the liver was produced. It was best given in soft capsule or disguised with cinnamon water or compound tincture of cardamom. The average dose for an adult was one drachm. It should not be given subcutaneously on account of the local irritation and pain which it produced, nor could it be given by inhalation, as it acted too slowly and was apt to be irritating. It did not seem to have an accumulative effect, nor was tolerance of the remedy established.

Urethane the author had tried in forty-two cases of insomnia, and found it to be possessed of moderate hypnotic qualities, although insufficiently powerful to successfully rival the remedies already mentioned. In regard to the physiological action of urethane we had the authority of Schmiedeberg for the statement that large doses of the drug produced loss of mobility with insensibility and unconsciousness. The respirations were increased in depth and frequency, and the heart-beat steadily sustained the blood-pressure at the normal point. Sensation persisted much longer than motion, and the temperature fell. The reflexes were but little affected in the urethane sleep. Diuresis and diaphoresis sometimes occurred. Urethane was best applied therapeutically to insomnia in cardiac diseases without great dyspnoea and to cases of moderate mental excitement. When sulphonal, amyl hydrate, and paraldehyde were too powerful, it might render good service in insomnia from melancholia. Urethane was contra-indicated in insomnia from pain and cough, as it had no anodyne properties, nor was it powerful enough for use in delirium tremens or in mania. It could scarcely be said to have toxic effects until very large doses—as, for instance, 180 grains—were taken. In some cases it had been known to cause nausea, somnolence, and gastric distress. Being soluble in two parts of water and being very free from offensive taste, urethane might be given by the mouth or by the rectum. In aqueous solution it might also be used subcutaneously. The adult dose varied from 15 to 30 grains, and for children from 12 to 18 grains was a fair dose; from two to three years old, 8 grains, and from four to fourteen years, 15 to 20 grains. The average dose for subcutaneous use was 4 grains.

Hypnone.—The author's experience with this drug was too limited to justify him in formulating conclusions based upon his own observations. From that of others he decided as follows: Therapeutically, it might be used in the absence of a better hypnotic in primary or nervous insomnia, but its effects were very uncertain, and, tolerance being soon established, larger doses were required than at the beginning of the treatment. It was contra-indicated in sleeplessness from cough, and was not to be given to patients with feeble stomach. It was best administered in doses of from 3 to 7½ grains, in capsules or almond-oil. His own experience with hypnone had, however, been so disappointing that he had practically abandoned its use.

CHARLES RICE, Ph. D., of New York County, reviewed the general points in the chemical history of the new hypnotics. Sulphonal was, he said, at present the most favored, but it had great disadvantages both pharmaceutically and therapeutically. It was almost insoluble in water, and its effect therefore was too slow. Recent experiments in Germany had resulted in the production of several more compounds of greater intensity from the sulphonal group. Of these, tetranol was the most intense of all. We should probably soon have the market flooded with a whole series of these compounds, each more powerful than its

predecessor. The conflict was also imminent as to who should be the lucky manufacturer of the drugs, because it was thought there were "millions in it."

Dr. SQUIBB said any remarks he might make would be in the line of conservative policy. These new hypnotics had been alluded to as having millions in them. It seemed to him that the more largely they were advertised the more they were used, and perhaps successfully used. The search for such remedies was entirely wrong, in his mind. Sulphonal was quoted at about \$1.35 an ounce in the market, and cost about 15 cents. It was controlled by a patent in this country, though not so abroad. It would be observed that there was no one of the hypnotics discussed which was susceptible of being used subcutaneously.

Dr. CARROLL said he had been struck by the discrepancy between the hypnotic effects reported from similar doses by different authors.

The subject was still further discussed by Dr. TRUAX, who, while drawing inferences favorable to sulphonal, did not think that the new drugs, so far, took the place of those already in use.

Dr. L. H. SAYRE presented a patient from whom he had amputated the right leg at the level of the junction of the upper and middle thirds of the femur. The patient was a young man, who had suffered for a long period with bone disease of the lower right extremity, commencing at the knee joint. Resection of this joint failing to arrest the process of necrosis, and the femur becoming involved, amputation had been performed, having for its special provision the leaving of a useful stump to which might be attached a practicable artificial limb. At the level referred to a circular cut was made, dividing the soft parts to the bone. A longitudinal incision was then made, enabling the operator to disarticulate the head of the femur from the cotyloid cavity. The result of the operation had fully justified the expectations, as the patient was now before them, wearing, for the second time only, an artificial leg the movements of which he was already able fairly to control.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1889.

The President, Dr. I. E. GRAHAM, of Toronto, in the Chair.

(Continued from page 473.)

Officers for the Ensuing Year.—The following officers were elected: President, Dr. P. A. MORROW, of New York; vice-president, Dr. G. N. TILDEN, of Boston; secretary and treasurer, Dr. G. T. JACKSON, of New York.

Dr. J. T. BOWEN, of Boston, and Dr. C. W. ALLEN, of New York, were elected members of the association.

Dr. BULKLEY presented the report of the Committee on Statistics.

It was voted to hold the next meeting of the association at Richfield Springs, N. Y.

Lupus Erythematosus.—Dr. W. A. HARDAWAY, of St. Louis, presented the history of a case. The patient, twenty-three years of age, had been well until October, 1887, at which time some spots were noticed upon the nose. These were treated with chrysarobin salve by the attending physician, who considered it a case of eczema. The treatment brought on an acute dermatitis, which obscured the real disease for a time, but, on clearing it up under soothing ointments, it was found that the disease was lupus erythematosus. The patient went to the Hot Springs of Arkansas after six weeks, and there it was

considered to be eczema. In March, 1888, the eruption occupied the same area, and was of a dusky-red color, the borders being sharply defined. Some improvement followed the use of sulphur and salicylic acid. For some reason a lead salve was ordered, and, by a mistake of the apothecary's, crystals of the acetate were put in it. The reader was called to see the patient, and found him with a temperature of 103° F., with great swelling of the lymph glands in the front of the neck, and with the upper lip incrustated. On the second day the swelling of the neck was very hard, and there were some spots of eruption on the forehead, not quite reaching the hairy scalp. On the third day there were pustular and bloody crusts upon the cheeks, resembling those of pustular eczema, and some œdema of the throat. The temperature was 104.5°, probably due to the adenitis. During the next two weeks the lower lip lost its crust and the fever abated, and within a month the disease had undergone complete involution. The glands became involved in a tubercular process all over the upper part of the chest. Hectic supervened, and he died suddenly of pneumonia after some days.

Dr. TAYLOR was skeptical about the acute attacks of lupus erythematosus of Kaposi. In one case which Dr. Bulkley had had in New York many of the clinical features of Kaposi's description had been absent. It seemed to him that Kaposi had got hold either of cases of syphilis or of quasi-acute cases of iodide-of-potassium poisoning.

Dr. GREENOUGH would question whether the fatal result had not been due to the violent dermatitis that had twice been set up and had resulted in affection of the lymph glands rather than to the lupus erythematosus itself.

Dr. SHEPHERD thought if the lupus had been left alone there would have been no glandular affection. In patients with a tubercular family history small irritations would sometimes set up glandular disease.

A Hitherto Undescribed Form of New Growth of the Vulva.—Dr. R. W. TAYLOR, of New York, read a paper on this subject. (To be published.)

Dr. GREENOUGH, referring to one of the author's cases, asked if the growth in parts free from pressure showed any tendency to exuberant growth.

Dr. TAYLOR replied that it did not. It was entirely flat.

Dr. BRONSON said that he had seen the case, and at first glance it had had the appearance of epithelioma. He could hardly conceive that an irritation acting for a time and then ceasing would start a process which could prove so rebellious. It seemed to him that there must be some specific cause at the bottom of it.

Dr. HEITZMAN said that the clinical picture and the microscopical study were entirely at variance in this case. The process, he believed, was malignant. He had studied the sections, and found that the rete mucosum was not thickened, but, on the contrary, very much thinned. The papillæ were very much enlarged. The tumor was certainly a sarcoma. The history of lack of ulceration and attempts at cicatrization, and the fact that the lymphatics were not affected, tallied with the view that it was sarcoma. As no autopsy was made, it would be impossible to say that there were not metastatic formations.

Dr. ROBINSON agreed with the last speaker that the case was one of sarcoma.

Dr. TAYLOR said that, while he could vouch for the clinical features, he had awaited with a good deal of interest the opinions of the last two gentlemen. It seemed to him, clinically, that it was something more than an inflammatory growth. The specimens had been carefully examined during a period of six months by Dr. Van Gieson, at the laboratory of the College of Physicians and Surgeons, and there had been nothing hasty in the conclusions offered.

Some General Suggestions in Dermatological Therapy.

—Dr. S. SHERWELL presented a paper on this subject. (To be published.)

Dr. BULKLEY had been especially interested in the matter of eczema upon the lip. He had been through with all varieties of treatment, and had come to conclusions identical with those of Dr. Sherwell. He could recall many patients who came for treatment each winter, and who were better during the warm months. He would go a step further than Dr. Sherwell, and look at the general condition of the patient, for some persons of catarrhal habit needed proper internal medication. In regard to the cases of anal eczema, he had seen fissures touched with nitrate of silver, and he was very cautious about the use of this remedy, for he had seen one case of general eczema set up, and the man had been kept in bed for three or four weeks.

Dr. ZEISLER believed that many cases of eczema of the lip were due to a diseased condition of the roots of the hairs, and in his hands the best treatment was by depilation. He was positive that the catarrh excited the eczematous condition and the syçosis. He had no doubt that the catarrh was of mycotic origin, although it was not yet proved. The treatment by depilation was efficient and cheap and did not cause any dermatitis.

Dr. TAYLOR spoke of the fact that dry sulphur was used to rub into the so-called "mange" of dogs, one variety of which was parasitic.

What Real Value have the Natural Mineral Waters in the Treatment of Diseases of the Skin?—

Dr. L. D. BULKLEY, of New York, read a paper with this title. It was, he said, the popular impression that natural mineral waters helped certain skin diseases; that some were to be applied on the outside, and some were to be taken internally, for the purpose of washing out the noxious agent. No doubt many cases were benefited, but any one who had seen many cases of the effects of natural mineral waters must have been many times disappointed. The water was but one element in the case; hope and faith might play an important part. Then there were the change of scene, rest from ordinary occupation, and perhaps the enforcement of regular hours. In Europe most of the springs had resident medical advisers, but, unfortunately, there were few of them in this country. It should be remembered that in certain instances other appropriate remedies were being taken at the same time; witness the treatment of syphilis at the Hot Springs of Arkansas. But in any case it was the water, pure and simple, which contributed most to the cure. Most of the waters had little effect upon the skin, but touched especially the kidneys, liver, bowels, etc. We could not always predict the effect of the water from its chemical analysis. Certain mineral waters were taken hot at the springs, but cold, or even with ice, when at a distance. In the case of iron, arsenic, and bromine springs the results were rather indefinite. Sometimes cutaneous diseases depending on debility were improved. Everybody had seen cases of eczema which had been treated at the sulphur springs in vain. Where there was a rheumatic element back of the cutaneous lesion no doubt some good could be received, but in those cases it was the alkaline water and not the sulphur which was of benefit.

Like all other remedies, the use of springs must be carefully prescribed in order to be of the greatest use. Probably more benefit was derived in eczema than in other diseases, and even then it should be toward the close of the case. First should be used the alkaline and moderately purgative waters, and then a tonic course. Carlsbad was advisable where there was much abdominal plethora. In acute cases the hot springs should be used. Care must be taken lest acute eczema be excited by the springs, for some very severe cases had been lighted up in this manner. In psoriasis sometimes sea-bathing was of far more

benefit than the mineral springs. In syphilis little benefit followed unless other treatment was kept up. Aene would often be benefited somewhat, and the iron springs were better than the sulphur. The chief difficulty in the use of this treatment was the fact that the patients were not under supervision, and were apt to follow their own fancy or the guidance of the attendants at the baths.

Dr. HARDAWAY had lived in the vicinity of several springs, and had seen a large number of patients who had tried the treatment. A large part of the benefit, it seemed to him, was due to the fact that the patients were away from their business. Undoubtedly some were helped by the water simply as water. In various gastric and intestinal disturbances which might lie at the root of an acne of the erythematous form in people who were lithæmic the water would act well. There were some persons who gave up a dissipated, irregular life, and spent the time quietly and regularly when at the springs. He had never seen any specific effects from the waters.

Dr. KLOTZ thought it a pity that the natural springs in this country, which he considered equal to those of Europe, should be so neglected.

Dr. TAYLOR spoke of the fact that there were so many social attractions at Saratoga that the patients were apt to be led away from the purpose of their visit. He had never seen any marked effects from the waters at Saratoga, but he had seen bad results, and he would advise persons with any renal or any commencing vesical or urethral trouble to leave the Hathorne water alone. In some of the patients who had what we called portal congestion the iron waters acted very harmfully; some patients had been brought to the verge of death by persistently drinking the water.

Dr. SHERWELL had had a patient with erythematous eczema much injured by a trip to one of the sulphur springs. The patient had returned in a pitiable condition.

Dr. DENSLow had found that eczema in his cold climate tended to become chronic, and patients had to be sent to a warmer locality. Those that were benefited most, as a rule, did not have much to do with the waters of the springs. He advised patients with acute disease to have nothing to do with them at all. Where there had been any benefit it had been in the old chronic cases, and the acute cases had been aggravated. Even in that case it seemed to him that the chronic cases would have been just as much benefited by the change to a warm climate, leaving the waters alone.

The PRESIDENT, in answer to an inquiry made by Dr. Bulkley, said that the St. Catherine Springs and the Preston Springs had given good results, but generally in rheumatic cases, and he preferred the latter place for this class of patients.

(To be concluded.)

Book Notices.

The Diseases of Children, Medical and Surgical. By HENRY ASHBY, M. D. Lond., M. R. C. P., Physician to the General Hospital for Sick Children, Manchester, etc., and G. A. WRIGHT, B. A., M. B. Oxon., F. R. C. S. Eng., Assistant Surgeon to the Manchester Royal Infirmary, etc. London and New York: Longmans, Green, & Co., 1889. Pp. xix-681. [Price, \$6.]

The original feature of this work is one which commends itself strongly to us; it is written conjointly by a physician and a surgeon, and so presents a consideration of the diseases peculiar to children as viewed from the standpoint of each. It is not

merely a compilation, but is based upon the personal experience of the authors and is written in a practical manner. Pathology is not greatly dwelt upon, and the diseases which are not peculiar to children, or are not modified by their occurrence in early life, are either omitted or briefly mentioned.

The arrangement is fair. A short space is given to the most important facts in the physiology of infancy and childhood, then the diseases incident to birth are considered, together with the hygiene and diet. Next are the diseases of the digestive and other systems of the body, general diseases, fevers, diseases of the bones, joints, nose, ear, and skin, and tumors and injuries, concluding with a short but valuable chapter on the administration of anæsthetics to children. In this arrangement we do not understand why the authors have decided to place the specific fevers between the diseases of the respiratory and those of the circulatory systems, and the general diseases between those of the circulatory and those of the nervous systems. They seem rather out of place, but there may be good reasons which induced the authors to assign them these positions. Still it would seem better to place them either before or after the diseases of the special systems.

The book is fairly well got up, the cuts are very clear and good, and the work commends itself as a useful addition to the library.

Hygiene of the Nursery. Including the General Regimen and Feeding of Infants and Children and the Domestic Management of the Ordinary Emergencies of Early Life. By LOUIS STARR, M. D., Clinical Professor of the Diseases of Children in the Hospital of the University of Pennsylvania, etc. Second Edition, with Twenty-five Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. x-17 to 280. [Price, \$1.]

THE ounce of prevention is essentially the principle underlying Dr. Starr's directions for the maintenance of health during infancy and childhood. Realizing that the little things of life are great things, he presents in forcible fashion practical suggestions not to be found thus aptly expressed in other books relating to the care and training of children. A conscientious study of these ten chapters will enable any young mother to successfully rout Mesdames Brown, Jones, and Robinson on their own ground, and render all gratuitous advice concerning the new baby a work of supererogation. The author tells the truth about sleep, bare legs, roller-skates, and bicycles, and utters a protest against the indiscriminate bathing that washes infants into heaven. An excellent dietary is given, and hints for emergencies constitute one valuable feature of this admirable little treatise, which everywhere aims to be of use to that helpless, hapless, yet loving and lovely creature, the young mother who is striving to act well her part without any previous education in the practical duties of life.

Lectures on Obstetric Nursing. Delivered at the Training School for Nurses of the Philadelphia Hospital. By THEOPHILUS PARVIN, M. D., Professor of Obstetrics and Diseases of Women and Children at Jefferson Medical College, etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. viii-9 to 104. [Price, 75 cents.]

The lectures that are contained in this little hand-book present much that is interesting and useful. The style is clear and often graceful, and the subject-matter treated intelligently, with an absence of exaggeration that is refreshing and reassuring. The multiplication of little books that are good is always to be commended, for little books are read. The perusal of this one is both pleasant and profitable.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book of Animal Physiology, with Introductory Chapters on General Biology and a Full Treatment of Reproduction. For Students of Human and Comparative (Veterinary) Medicine and of General Biology. By Wesley Mills, M. A., M. D., L. R. C. P. (Eng.), Professor of Physiology in McGill University and the Veterinary College, Montreal. With over Five Hundred Illustrations. New York: D. Appleton & Company, 1889. Pp. xxii-700. [Price, \$5.]

The Cerebral Palsies of Children. A Clinical Study from the Infirmary for Nervous Diseases, Philadelphia. By William Osler, M. D., Fellow of the Royal College of Physicians, London; Professor of Clinical Medicine in the University of Pennsylvania, etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 103. [Price, \$2.]

An Experimental Study in the Domain of Hypnotism. By Dr. R. von Kraft-Ebing, Professor of Psychiatry and Nervous Diseases in the Royal University of Graz, Austria. Translated from the German by Charles G. Chaddock, M. D., Assistant Physician, Northern Michigan Asylum. New York and London: G. P. Putnam's Sons, 1889. Pp. viii-129. [Price, \$1.25.]

Hypnotism: Its History and Present Development. By Fredrik Björnström, M. D., Head Physician of the Stockholm Hospital, etc. Authorized Translation from the Second Swedish Edition. By Baron Nils Posse, M. G., Director of the Boston School of Gymnastics. New York: The Humboldt Publishing Co. Pp. 126. [The Humboldt Library.]

Studies in Intestinal Surgery. By W. B. Van Lennep, A. M., M. D., Philadelphia, Pa. [Reprinted from the "Hahnemannian Monthly."]

A Case of Cerebral Syphilis following an Attack of Thermic Fever. By Lewis H. Adler, Jr., M. D., Philadelphia. [Reprinted from the "Boston Medical and Surgical Journal."]

A Case of Loreta's Operation for Stricture of the Pylorus. By T. W. Huntington, B. A., M. D., Sacramento, Cal. [Reprinted from the "Occidental Medical Times."]

The Case of Mrs. Wilhelmina C. D. Lebkuchner. By Matthew D. Field, M. D., New York. [Reprinted from the "Medico-legal Journal."]

The Pine Belt of New Jersey. A Region of Sandy Soil and Pine Forests. By Isaac Hull Platt, M. D., of Lakewood, N. J. [Reprinted from the "Transactions of the American Climatological Association."]

Scientific Work by Alienists. By F. B. Stephenson, M. D., Surgeon, United States Navy. [Reprinted from the "Boston Medical and Surgical Journal."]

The Purulent Conjunctivitis of Infants, and Blindness in New York State. By Lucien Howe, M. D., Buffalo. [Reprinted from the "Transactions of the New York State Medical Society."]

A Report of Three Interesting Cases, viz.: Case I—Adenoid of the Vault of the Pharynx. Case II—Strumous Ozena. Case III—Tubercular Phthisis; Secondary Tubercular Ulcer of the Tongue (Presented before the Kings County Medical Association, May 7, 1889). By Sidney Allan Fox, M. D. [Reprinted from "Gaillard's Medical Journal."]

The Value of Creasote in Fifty Cases of Disease of the Air-Passages. By William Perry Watson, A. M., M. D., Jersey City, N. J. [Reprinted from the "Virginia Medical Monthly."]

Atropine in Enuresis. By William Perry Watson, A. M., M. D., Jersey City, N. J. [Reprinted from the "Archives of Pediatrics."]

Diphtheritic Paralysis. By Lewis H. Adler, Jr., M. D. [Reprinted from the "American Lancet."]

Prolapse of the Womb, with Especial Reference to the (so-called) Hypertrophic Elongation of the Supra-vaginal Portion of the Cervix, with Report of a Case. By Lewis H. Adler, Jr., M. D. [Reprinted from the "Medical News."]

The Early Diagnosis of Extra-uterine Pregnancy. By J. M. Baldy, M. D., Philadelphia. [Reprinted from the "Medical Record."]

Abstract of a Paper on the Choice of Treatment of Urinary Concretions. By John W. S. Gouley, M. D. [Reprinted from the "Journal of the American Medical Association."]

Leprosy, with a Report on Two Cases. By George Dock, M. D., Galveston, Texas. [Reprinted from the "Transactions of the Texas State Medical Association."]

A Clinical Atlas of Venereal and Skin Diseases, including Diagnosis, Prognosis, and Treatment. By Robert W. Taylor, A. M., M. D., Surgeon to Charity Hospital, New York, and to the Department of Venereal and Skin Diseases of the New York Hospital, late President of the American Dermatological Association. Illustrated with One Hundred and Ninety-two Figures, many of them Life Size, on Fifty-eight beautifully colored Plates. Also many large and carefully-executed Engravings through the Text. Parts VII and VIII. Diseases of the Skin. Philadelphia: Lea Brothers & Co., 1889.

Miscellany.

Sectarianism in Medicine.—The question of the expediency of open affiliation with homœopathic practitioners—to the degree, at least, of obliterating any antagonism recognizable by the public—has lately been under discussion at two meetings of the Philadelphia County Medical Society, having been introduced by Dr. Edward Jackson. Dr. Solomon Solis-Cohen's closing remarks in the debate were as follows:

"I have not sought this controversy. Dr. Jackson has thrust it upon the society. We are compelled to plead 'not guilty' to his charge of narrowness. Homœopathy purports to be a new revelation in medicine; to embody the perfect truth, unknown before. It is, therefore, not only proper but necessary to quote from the 'Organon' of its founder to determine what is entitled to the name. If I want to know what Judaism is, I must go to Moses and the prophets. If I wish to learn about Christianity, I must go to the New Testament. If I wish to find out in regard to Mohammedanism, I must consult the Koran. Nor am I justified in believing, in opposition to the New Testament, that Christianity is truthfully represented by the man who cheats all the week and goes to church on Sunday; or in accepting, in opposition to his sacred books, as an exponent of Judaism the man who practices chicanery all the year and fasts on the Day of Atonement. Just as little can I accept as interpreters of homœopathy, in opposition to its founder, the men who find their profit in professing it, but hourly violate its canons in their practice. The 'Organon' clearly defines what should be called homœopathy, and as explicitly, and with the utmost opprobrium, condemns and rejects the 'mongrel system' which Dr. Jackson attributes to the Hahnemann College and its alumni. But later authorities than Hahnemann do the same thing. There are very many honest homœopaths, sincere in their delusions. Almost the last utterance of the late Dr. Adolph Lippe, who has not been dead two years, was a most scathing denunciation of those whom Dr. Jackson would have us believe are truthfully called homœopaths. As to recantation of each mistake a man may make in his lifetime, the cases are not parallel. The errors of the homœopathic system are not mere individual errors in detail, to which all of us are liable. They are fundamental; and they have been systematized into a creed; a veritable confession of faith. It is a faith that meets a public demand, and hence has a commercial value that unfits a man for the profession of medicine, because it imprisons his judgment. Such a faith in systematized error must, if professed, be lived up to. Or it must needs be repudiated before one can be acknowledged as fitted for a calling which, above all others, demands absolute freedom from prejudice and untrammelled liberty of action. Science and 'tenets' are incompatible. Tenets are fixed. Science is progressive. Dr. Jackson has asserted that certain men do not practice homœopathy, yet they belong to homœopathic county and State societies; and it was their allegation of the existence of 'schools'—not ours—which defeated the bill for State examinations. We tried to ignore sects or schools. They declared it was an 'allopathic' scheme to suppress trade rivalry. It seems to me that, with a perversion of logic worthy of Hahnemann himself, Dr. Jackson, in endeavoring to remove from these men the stigma of ignorant dogmatism, has brought against them a much more serious accusation. If science forbids us to consult with the unqualified, surely honesty equally prevents fraternization with those who make false professions. How we are open to the charge of sectarianism I can not see. It is another specimen of

Hahnemannian logic. Because a crank chooses to flock by himself in a corner, are all the rest of mankind sectaries? We prescribe no opinions, but hold ourselves free to act or refrain from action, as our best judgment may dictate. We 'ostracize' no one. We repudiate not particular 'tenets,' but the very idea that there can be 'tenets' in medicine. It is by refusing to admit tenets that the profession has advanced in spite of past errors, and will continue to advance in spite of present errors. The door by which the members of this society entered the temple of a profession whose only demand upon its votaries is that they earnestly seek truth and honestly follow it, that same door is open for all who may elect to enter. But if, turning back from that door, men have chosen to band themselves under the title invented by the man who said that previous to him all medicine was folly, and that he had discovered the eternal and infallible law beyond which there could be no progress, such men must accept the consequences of their voluntary action. As for the scientific text-books, cited as taught at the Hahnemann College, they and Hahnemann's 'Organon' can not be fruitfully studied in the same school. You can not teach the New Testament and the doctrine of the Thugs from the same pulpit. If such were attempted, human nature would take the lower, because the easier course. It seems to me that this is wholly a matter of conscience. If the conscience of a man will allow him to take part in what I must deem deceit, that is his personal affair. It is not my place to attack or upbraid him. But when this society is asked to indorse his conduct, it becomes a different matter; and I have the right to oppose such stultification."

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending October 25th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—									
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Oct. 19.	1,585,669	641	..	..	..	..	..	12	3	24	1	5
Brooklyn, N. Y.	Oct. 19.	843,602	294	..	..	..	..	..	5	2	17	..	2
Baltimore, Md.	Oct. 19.	500,343	165	..	..	..	..	..	6	..	6	..	1
St. Louis, Mo.	Oct. 19.	450,000	164	..	..	..	..	..	4	4	12	..	..
Boston, Mass.	Oct. 19.	420,000	175	..	..	..	..	..	6	..	10	..	2
Cincinnati, Ohio.	Oct. 19.	325,000	102	..	..	..	..	..	1	..	6	..	1
New Orleans, La.	Oct. 12.	254,000	105	..	..	..	..	..	1	..	3	..	..
Detroit, Mich.	Oct. 12.	250,000	59	..	..	..	..	..	2	..	4	..	..
Cleveland, Ohio	Sept. 21.	235,000	80	..	..	..	..	..	5	..	10	..	1
Cleveland, Ohio	Sept. 28.	235,000	96	..	..	..	..	..	8	..	7	..	..
Pittsburgh, Pa.	Oct. 19.	230,000	85	..	..	..	..	..	13	2	13	..	..
Louisville, Ky.	Oct. 12.	227,000	57	..	..	..	..	..	7	..	..	..	..
Minneapolis, Minn.	Oct. 12.	200,000	46	..	..	..	..	..	4	2	4	..	..
Minneapolis, Minn.	Oct. 19.	200,000	44	..	..	..	..	..	6	1	7	..	..
Providence, R. I.	Oct. 19.	127,000	47	..	..	..	..	..	2	..	4	..	1
Denver, Col.	Oct. 18.	125,000	52	..	..	..	..	..	15	..	1	..	..
Indianapolis, Ind.	Oct. 18.	124,450	32	..	..	..	..	..	..	..	..	..	..
Richmond, Va.	Oct. 12.	100,000	41	..	..	..	..	..	3	..	2	..	..
Richmond, Va.	Oct. 19.	100,000	36	..	..	..	..	..	1	..	2	..	1
Toledo, Ohio	Oct. 18.	89,000	29	..	..	..	..	..	..	..	3	..	..
Fall River, Mass.	Oct. 19.	69,000	25	..	..	..	..	..	1	..	..	..	..
Nashville, Tenn.	Oct. 19.	65,153	25	..	..	..	..	..	..	..	..	..	..
Charleston, S. C.	Oct. 19.	60,145	48	..	..	..	..	..	1	..	..	..	..
Lynn, Mass.	Oct. 19.	59,000	19	..	..	..	..	..	..	..	..	..	..
Portland, Me.	Oct. 19.	42,000	13	..	..	..	..	..	..	..	..	..	..
Galveston, Texas.	Oct. 4.	40,000	7	..	..	..	..	..	..	..	..	..	..
San Diego, Cal.	Oct. 16.	32,000	5	..	..	..	..	..	..	..	..	..	..
Binghamton, N. Y.	Oct. 19.	30,000	6	..	..	..	..	..	..	..	..	..	..
Yonkers, N. Y.	Oct. 18.	30,000	7	..	..	..	..	..	..	..	..	..	..
Auburn, N. Y.	Oct. 19.	26,000	8	..	..	..	..	..	..	..	..	..	..
Haverhill, Mass.	Oct. 19.	25,000	11	..	..	..	..	..	1	1	..	..	..
Newport, R. I.	Oct. 17.	22,000	7	..	..	..	..	..	..	..	..	..	..
Keokuk, Iowa.	Oct. 20.	16,000	2	..	..	..	..	..	..	..	..	..	..
Rock Island, Ill.	Oct. 13.	16,000	4	..	..	..	..	..	..	..	2	..	..
Pensacola, Fla.	Oct. 12.	15,000	4	..	..	..	..	..	1	..	..	..	..
Pensacola, Fla.	Oct. 19.	15,000	3	..	..	..	..	..	..	..	..	..	..

The Ohio State Sanitary Association will hold its seventh annual meeting in Dayton, on the 21st and 22d inst., under the presidency of Dr. D. H. Beckwith, of Cleveland. The programme includes the following items:

"The Relations of Theologians to Sanitarians," by Dr. D. J. Snyder, of Scio; "Sanitation vs. Medication," by Dr. S. P. Bishop, of Delta; "Recent Advances in Aetiological Science," by Dr. E. R. Eggleston, of Mount Vernon; "Sanitation in Small Villages," by Dr. Austin Hutt,

of Waverly; "Bodily Comfort as a Sanitary Object," by Dr. G. C. Ashmun, of Cleveland; "The Influence of Climate upon so-called Malarial Fevers," by Dr. W. Owens, of Cincinnati; "The Cadaveric and Vital Alkaloids," by Professor C. C. Howard, of Columbus; "Will General Sanitation ever become Popular?" by Dr. John McCurdy, of Youngstown; "Bacteria, or the Flies we Feed on and the Bugs that Kill us," by Dr. W. S. Battles, of Shreve; the president's address—1. "The Use of Pork; its Relations to Scrofula and Consumption." 2. "Mosaic Prohibition of Pork as taught by the Scriptures, and the Prejudices of most of the Ancient Nations to its Use as Food." 3. "Description of *Trichina spiralis* and its Dangerous Effect on the Human Body"; "Food as a Therapeutic Agent," by Dr. H. J. Herrick, of Cleveland; "The Best Food for Man," by Dr. J. D. Buck, of Cincinnati; "The Relation of Water-supply to Disease," by Dr. H. J. Sharp, of London; "The Necessity of Uniform Rules, Regulations, Reports, and Records of Local Boards of Health," by Dr. F. Gunsaulis, of Columbus; "The Sanitary Teachings of the Bible," by Professor E. T. Nelson, of Delaware; "The Hygiene of the Chronic Insane," by Dr. J. W. Scott, of Cleveland; "Garbage and Night-soil Crematories from a Financial and Practical Standpoint," by Dr. George I. Garrison, of Wheeling, W. Va.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE TREATMENT OF
THE RUPTURED PARTURIENT UTERUS,

WITH A REPORT OF TWO CASES.*

BY CHARLES A. L. REED, M. D.,

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MEDICINE AND SURGERY AND AT THE CINCINNATI POLYCLINIC;
FELLOW OF THE AMERICAN ASSOCIATION OF
OBSTETRICIANS AND GYNÆCOLOGISTS.

TREATMENT of the ruptured parturient uterus has not as yet been formulated into definite principles, although Trask, after his first critical study of the subject in 1848, earnestly contended for some rule which would serve as a guide to the practitioner in this unfortunate emergency. It is true that he made an attempt at framing rules which would serve this important end, and did indeed take a step in advance of his time by clearly indicating his preference for abdominal section in this class of cases, stating that "neglect of this mode of delivery augmented the mortality from this accident." Yet, clear as Trask's convictions manifestly were on this subject, he could not divest himself of the conservatism of his era, and presented the conclusions of his classical research in the following words: †

"1. When rupture occurs, where there is no disproportion between the pelvis and the head of the child, and the head remains in the cavity of the pelvis, the child being ascertained to be living, the careful employment of the forceps should be attempted; if the head retreat, perforation is to be preferred. An impaction of the head in the hollow of the pelvis would, of course, require the use of the perforator.

"2. Should the fœtus have escaped into the peritoneal cavity, the feet may be sought, and the child delivered by turning, provided there be a pelvis beyond doubt ample, a head of moderate dimensions, and the edges of the uterus uncontracted, or the rent confined chiefly to the vagina.

"3. But as contraction of the uterus almost uniformly takes place upon the escape of the child, it will prove an obstacle to almost every case of escape of the child in which the vagina is not also involved to a very considerable degree. The performance of gastrotoomy will then offer the best chances of success."

Although the foregoing conclusions were promulgated over thirty years ago, and although the researches of Jolly and Harris have since confirmed the value of abdominal section in these cases, I am convinced that the practice of to-day is practically in accord with the teachings of Trask. My warrant for this statement is not found in the details of reported cases, which are generally furnished to the journals by progressive surgeons, but it is found rather in the fact that, with few exceptions, the text-books on obstetrics teach practically the same principles of practice which were current before the modern triumphs of abdominal surgery.

Parvin, one of the latest as he is one of the ablest of

our obstetric writers, after alluding to gastrotoomy in these cases, adds: *

"But it does not follow that abdominal section should be made in all cases of uterine rupture when the fœtus can be readily delivered through the normal passage, but only in those in which there has been hæmorrhage or escape of amniotic fluid into the abdominal cavity; even in the latter good results have been had in some cases by washing out the peritoneal cavity through the rent with an antiseptic fluid, and securing drainage."

Lusk, in connection with the report of a recent case, says: †

"When the child can be removed through the natural passage without increasing the extent of the rupture, and the latter is confined to the lower segment, laparotomy is of doubtful value. In many such cases recovery *quoad vitam* has been obtained by the employment of antiseptic irrigation and filling the gap with antiseptic gauze. . . . The plan of treatment recommended is, of course, only effective where no infection of the abdominal cavity has taken place at the time of rupture."

It is but a few years since Leishman's work was on the text-book list of nearly all the American medical schools; in many instances it still holds its place, and consequently it has exerted, and still exerts, an important influence in molding the practice in this country. His summary of treatment is, therefore, of extreme importance. I believe that he fairly epitomizes the treatment—the average treatment—of to-day in the following words:

"On the whole evidence we must pronounce in favor of gastrotoomy when the child is in the peritoneal cavity; of turning when it has remained in the cavity of the uterus; and of the forceps or perforation when the head can be easily reached within the pelvis."

These extracts from current authors are presented to show that there has been but little progress in the management of these cases since the days of Trask, and to give a brief *exposé* of a treatment which I do not believe to be in harmony with the well-established canons of modern surgery.

The points at issue can best be studied by responses to queries which occur, with practical pertinence, to the mind of the unfortunate consultant in cases of ruptured parturient uterus.

What shall be done with the child which is yet within the ruptured uterus?

Most cases of rupture of the uterus occur in vertex presentations, and the first objective evidence of the occurrence of the accident is recession of the head. Contraction of the longitudinal fibers is the next phenomenon, and the head, following the direction of least resistance, is forced into the rent. In some cases, however, instead of contraction of the longitudinal fibers, inertia supervenes, and labor, for the time, comes to a standstill. If, happily, the rent be now incomplete, the timely inertia arrests the extrusion of the head and saves the peritoneal cavity from invasion. It is pre-

* Read before the American Association of Obstetricians and Gynæcologists, at Cincinnati, September 17, 1889.

† "American Journal of the Medical Sciences," 1856.

* "Science and Art of Obstetrics."

† "New York Medical Journal," September 14, 1889.

cisely this latter contingency which should dictate the treatment: *Apply the forceps and deliver at once.*

The usual alternative of the treatment is turning, as advised by Leishman. It is against this alternative that I desire to enter my protest. It should be remembered that at this juncture, as a rule, the differential diagnosis between complete and incomplete rupture can not easily be made. In this case we should always act upon the presumption that the rupture is incomplete; and our practice should be adopted with reference to saving the peritonæum. In the cases of Trask, Jolly, and Harris, turning figures as one of the primary causes of rupture. Ought we, therefore, in a case in which at least partial rupture has already weakened the uterine wall, to adopt a manœuvre which has been known to produce rupture of the uninjured wall? Clearly the proposition is as irrational as the practice is disastrous.

But there are instances in which delivery by the forceps *per vias naturales* is impracticable—*e. g.*, cicatricial bands at the internal os, and extreme kyphosis, as in Lusk's recent case already alluded to. What should be done under such circumstances? I contend that all efforts at delivery by any expedient whatever should be at once abandoned. The attempt at applying the forceps should not be made if pelvic contraction or other insurmountable obstacle to delivery is manifest; and if a single application of the forceps demonstrates the impracticability of delivery by that method, the verdict should be accepted at once. Repeated efforts at applying the forceps should be avoided, as each effort will do more or less damage to an already damaged uterus, and may thus interfere with the resolution of that organ. Turning should not be thought of. At this juncture either craniotomy or embryotomy has been practiced. The ascertained mortality of the procedure but confirms the condemnation which a rational contemplation of it furnishes. What, then, should be done? I advise that the patient be at once submitted to abdominal section, and delivery effected either by incision of the uterus, if the rupture is incomplete; through the (if necessary) enlarged rent, if the rupture is complete; and that the uterus be then treated according to either Sânger's or Porro's method, as may be indicated.

What shall be done in cases of rupture of the uterus in which the child and after-birth have been successfully extracted by the natural passage?

The first thing that ought to be done after successful delivery by the natural passage should be to determine, by cautious and gentle manipulation, whether or not the case is one of complete or incomplete rupture. If found to be incomplete, the case should be treated by antiseptic irrigations. I do not employ chemical antiseptics in aseptic surgery, but in this case we have to deal with an open and absorbent surface, and, very shortly, with the products of putrefaction in contact with that surface; hence it becomes eminently proper to employ either a phenolic or a mercuric bichloride solution.

But in the event that the tear is found to communicate with the peritoneal cavity, we are at once brought face to face with one of the moot questions connected with the subject. It is just here where Parvin asserts that ab-

dominal section would not be justifiable unless "there has been hæmorrhage or escape of amniotic fluid into the peritoneal cavity"; and it is precisely in these cases that Lusk tells us that "recovery *quoad vitam* has been obtained by employment of antiseptic irrigation," etc., but warns us that this plan of treatment is "only effective where no infection of the abdominal cavity has taken place at the time of rupture." How are we to know whether "there has been hæmorrhage or escape of amniotic fluid into the peritoneal cavity?" By what process can we determine whether or not "infection of the abdominal cavity has taken place at the time of rupture?" Clearly, the only rational recourse at our hand is exploratory incision, and I may go a step further and say that exploratory incision, in the ordinary acceptation of the term, falls far short of the requirements of the case. Those of us who are familiar with making the toilet of the peritonæum after a bloody ovariectomy know with what facility even large clots may elude the finest tactile sensibility. It is manifest that in cases such as that under discussion nothing short of copious flushing can at once establish the diagnosis of intraperitoneal extravasation, and rid the cavity of the offending stuff.

In illustration of the importance of abdominal section under these circumstances I beg leave to call attention to the following case:*

CASE I.—Mrs. D., aged twenty-eight, had borne three children in rapid succession and without difficulty. When seized with her fourth labor, she was compelled to rely for a time upon a midwife, as her attending physician was temporarily absent. The case was one of shoulder presentation, one arm having come down. When the physician arrived, the patient had been in active labor about three hours. Pains were excessive. Ten minutes later symptoms of shock were suddenly manifested, the presenting shoulder receded, and there was relaxation of the soft parts. With commendable presence of mind the arm was replaced, the forceps applied, and the child delivered alive. Delivery having been effected, hold was retained on the cord, and, as was then thought, a successful effort made to deliver the placenta.

I arrived five hours after the accident. With the assistance of Dr. Smolly, the abdomen was opened with an incision five inches in length, and a laceration of the uterus was found, four inches in length and involving nearly the entire anterior wall. In the rent a piece of placenta of about the size of three fingers was found. This had been torn off, probably during the efforts at dislodgment. No clots of consequence were found in the abdominal cavity. The peritoneal rent corresponded with the muscular tear. It was not so extensive as that in the other case which occurs in this report. The edges of the wound were relieved of all fringes of tissue, carefully approximated, and closed with twelve deep interrupted sutures of silk. The peritonæum was then closed by continuous catgut suture, and the abdominal incision closed in the ordinary way. The patient made an uninterrupted recovery.

If there is any case at all in which a reasonable presumption of non-contamination of the peritonæum would obtain, it would certainly be in this one; yet section revealed the existence of an altogether unsuspected condition, which, had it not been removed, would in all probability have induced septic peritonitis and death. But it is not

* "Lancet Clinic," 1888, vol. ix.

alone to remove existing infection of the peritoneal cavity that abdominal section should be done in these cases, but it is to close the rent, and thus prevent, if possible, the migration of the germs of putrefaction from the cavity of the uterus into that of the peritonæum. It is true that this can not be done in all cases, tears low down in the posterior wall being beyond the range of operation; but, when it can be done, the edges of the wound should be carefully trimmed, approximated, and securely closed by the Czerny-Lembert suture.

What shall be done in cases in which the child has been born, but in which the placenta has escaped into the peritoneal cavity?

This complication occurs with relative frequency, and when it does occur it is the next in order of events to claim attention. In this class of cases we have a condition in which it would seem that removal of the placenta could be readily effected through the rent; but that it is, on the contrary, a very difficult manœuvre, is shown in the following case, which, when I was called to it, presented exactly the problem indicated in the question at the head of this paragraph. I take the liberty of presenting the case in the language of Dr. Shaller, the attending physician, as employed by him in his report to the Cincinnati Academy of Medicine:*

"On Saturday, April 29, 1888, at 6.30 A. M., I was called to see Johanna M., in labor with her fifth child. She was a well-built, strong German woman. I learned that pain had set in at eleven o'clock Friday night, a midwife being called in at 4 A. M., though after her arrival no uterine pains occurred.

"The abdomen, while tender to pressure, was not abnormally so, and the pulse at 100 was good and full. Digital examination revealed the head engaged in the superior strait, clearly defined in its entire circumference. There was no flooding, and, abdominal pains prevailing, I gave morph. sulph., gr. $\frac{1}{4}$, hypodermically, and left the patient. Returning within an hour, I found her bleeding freely.

"Examination at this time showed that the head had receded. Introducing my hand, and finding the feet within easy reach, I brought them down, and the child was delivered in one hour, with bearing-down pains. The abdomen being tender, I forbore external pressure, and in this way failed to observe uterine contractions. The child was dead when born.

"After cutting the cord, I waited a short time for the expulsion of the placenta. There being no pains, I thought to take hold of the cord in order to make traction, but there was no cord to be found. Examination of the bed failed to offer any clue to the missing cord, and a digital vaginal examination met with no better success. The hand was then passed into the vagina; the cervix uteri could not be defined; and, on passing the hand higher, it suddenly seemed to have entered into an infinity of space. Never before had I realized the magnitude of the abdominal cavity, for, normally, the hand while in the vagina is grasped and limited by the surrounding tissues. For the hand to pass suddenly from a confined area into a boundless region, under the circumstances mentioned, produces rather a weakness in one's knees. To the right and anteriorly the contracted uterus was felt. The placenta could not be found; and, giving the patient two drachms of fluid extract of ergot, I left to procure assistance. I fortunately succeeded in

finding Dr. C. A. L. Reed, who proposed abdominal section for the removal of placenta and clots."

The following description of the operation is in the words of Dr. Reed:

"The operation was actually begun about 1 P. M., four hours after the discovery, and nine hours after the occurrence of the rupture; Drs. Shaller, Wenning, Mayer, and Marsh present and assisting. An incision was made about five inches in length. The uterus was found to extend well up to the umbilicus.

"While making a preliminary exploration the cord was found; taking it as a guide, the placenta was easily found lying low down in the pelvis and back of the uterus. It was now removed, and with it a number of clots. The abdomen was carefully cleansed. Search was now made for the rupture. The position of the placenta and the knowledge that the majority of such ruptures occur in the posterior aspect of the organ attracted attention in that direction. The apparent homogeneity of the structures, whether felt through the vagina or through the abdominal incision, led to further confusion. It was not until Dr. Shaller introduced his hand into the vagina and thrust his finger through the rupture that the latter could be made out. It was found on the anterior surface of the uterus, extending longitudinally from a point midway through the cervix and involving a part of the anterior vaginal wall. This description applies only to the rupture as it existed in the muscular structure; the peritoneal rupture began coincidentally with the upper angle of the deeper rent, but extended off to the left, involving the anterior layer of the broad ligament and a portion of the serous covering of the bladder, leaving quite denuded an area of muscular tissue, triangular in shape, three inches and a half in perpendicular, with a base quite two inches in extent. This ragged curtain of peritonæum was turgid with extravasated blood, held firmly in the meshes of the yet-adherent subserous cellular tissue.

"Two lines of sutures were employed—one deep, involving the muscular structure; the other superficial, involving the peritonæum. The sutures in the muscular tissues were of sterilized silk, interrupted, and twelve in number; the peritoneal sutures, also of sterilized silk, were thirty in number, and, with the exception of the last half-dozen applied low down in the pelvis, were after the Czerny-Lembert method. Suturing low down in the pelvis was extremely difficult, so that the double-in-and-out stitch or the so-called 'seroserosous' suture could not be applied, the simple interrupted suture being substituted. The abdominal cavity was again cleansed, and the incision closed in the usual way, a drainage-tube being left in position.

"*After-treatment.*—After the operation the pulse never went below 110, the patient resting comfortably the first twelve hours, after which, severe pain and vomiting setting in, I gave morph. sulph., gr. $\frac{1}{4}$, hypodermically. On Sunday, twenty-four hours after the operation, the pulse was 130; temperature, 101°; eructations frequent, no stool or flatus; the urine was drawn twice, after which it passed without pain and normally. There was no bloody discharge from the vagina; the abdomen was tender and tympanitic. Hot-water injections were given every three hours. The drainage tube was emptied of blood and cleansed with sulphurous-acid solution (one fifth) every six hours. Ice, iced milk, and brandy were given freely.

"Thirty-six hours after the operation vomiting set in, with increase of pain and tympanites. The second dose of morph. sulph. was administered. Calomel, $\frac{1}{4}$ grain every half-hour. Temperature, 102°; pulse, 140. Slight bloody discharge from vagina. A rectal injection of pure glycerin, later hot water, and still later the introduction of a rectal tube, failed to pro-

* "Lancet Clinic," 1888, vol. ix, p. 515.

duce stool or wind. Grains xx of calomel were given in one dose. Forty-eight hours after the operation the extremities became cold, pulse feeble, slight delirium, tympanites very great, no stool. The patient died Monday at 6 P. M., fifty-four hours after the operation, from the effects of peritonitis."

This case is one which demonstrates the serious nature of injury to which the uterus is subject by rupture. There can be no doubt but that the parenchyma of the organ sustained serious damage by the contractions which ultimately provoked the rupture, that this damage existed in the fibers of the uterus in an area much more extensive than that involved by the tear. I have often felt that I should have done a Porro operation in this case, but I was deterred by two considerations—viz., first, all of the damaged tissue could not be removed by supra-vaginal amputation of the uterus; and, secondly, I did not go prepared to do the latter operation. It has occurred to me that the long retention of the placenta and clots before the operation had already given rise to peritonitis, which proved to be the fatal factor in the case.

What shall be done in cases in which the child, or the placenta, or both, have escaped into the peritoneal cavity?

It would seem that the duty of the practitioner is clear under these circumstances. Yet, when he turns to our authors, he finds himself led in both directions at once. He finds himself taught that abdominal section should be done in cases of evident contamination of the abdominal cavity; he is told that the operation should not be done in all cases in which "the fœtus can be readily delivered through the natural passage"; and he is reminded of recoveries from antiseptic irrigations and antiseptic gauze packs; and then he wonders whether, indeed, it be possible to gain direction out of indirection. He is left entirely on his own responsibility, and to solve the problem strictly on its merits.

The first fact to claim attention is that the uterus, in the act of rupturing, must have discharged some blood into the peritoneal cavity; and the next is, that the child and placenta must have carried with them more or less of detritus. Amniotic fluid may have found its way into the abdomen. These considerations alone should prompt abdominal section—if not for the purposes of delivery, yet for the purposes of cleanliness. If the abdomen is to be opened for the purpose of flushing, why not effect delivery through the incision at the same time? There are other considerations prompting to this course. The advice of Parvin, that abdominal section should not be done when the fœtus can "be readily delivered through the natural passage," is liable to a dangerous interpretation at the hands of practitioners who are anxious to evade the responsibilities of the knife. With them "ready delivery" is liable to imply not merely the introduction of the hand, which is not devoid of danger; nor the mere grasping of the presenting part, which is not always easy; nor the mere turning in the abdominal cavity, which is always hazardous; but a test of the tractile power of the operator and the resistant power of the patient. In this way patients may be subjected to a hazard which the knife in the hands of a skillful operator could not incur.

But we are "informed" that good results have been had

in some cases by "washing out the peritoneal cavity through the rent with an antiseptic fluid and securing drainage"; and, again, we are told of recoveries by "employment of antiseptic irrigation and filling the gap with antiseptic gauze." I will not dispute the fact of such recoveries, for they are well authenticated, but I can not but concur with Harris that every such recovery is to be looked upon as a misfortune, tending, as it does, to stimulate others to persist in a practice that is essentially unscientific.

The only danger to life, however, does not come from extraperitoneal infection, which may have found its way into the cavity at the time of rupture, or that may have been carried thither by the child, or the placenta, or both, nor yet that may have subsequently traversed the wound in the form of lochia. It must be remembered that the parenchyma of the uterus has sustained serious damage (1) by its own violent contractions, (2) by the rupture, (3) may be by the use of the forceps, (4) by the escape of the child through the tear, (5) by repeated digital examinations, (6) by the introduction of the hand, (7) by efforts at traction to determine the feasibility of delivery *per vias naturales*, and (8) by the forcible withdrawal of the child through the rent. All these influences may have been brought to bear upon a uterus before the surgeon is called. What prospect has such a damaged uterus for resolution? Is it not much more liable to become the breeding-ground of septic germs that may have originated in the first instance at the placental site? And, if we thus have established a suppurative parenchymatous metritis, is not the death of the patient from septicæmia almost a foregone conclusion? In the light of these considerations extirpation of the uterus is clearly indicated, and should be recognized as a definite probability in undertaking abdominal section in these cases.

The conclusions to which my brief studies and limited experience force me are as follows, viz.:

1. In cases of rupture of the uterus, with the head presenting, delivery by forceps should be attempted, but should be abandoned if not found easily practicable. Turning should not be undertaken, but the case should be at once recognized as one for either the Cæsarean or Porro operation.
2. In cases of ascertained incomplete rupture, treatment should be by antiseptic irrigations and rest.
3. All cases of ascertained complete rupture should be submitted to abdominal section so soon as the condition of the patient with reference to shock will admit, for the following purposes—viz., (1) to explore the abdomen, (2) to remove all foreign bodies, (3) to cleanse the peritonæum, (4) to close the rent if the labor has been short and the uterus not seriously damaged, and (5) to remove the uterus if the labor has been long and the uterus seriously damaged.

Hydrocephalus.—"Dr. Rodionoff mentions in the 'Meditsinsköe Obozrënië' a somewhat remarkable case of recovery from chronic hydrocephalus in a child of eleven months old. The mother took good care of it until it was two years old, and then left it to itself. It was thus exposed to a hot sun for many weeks, and, strange to say, a year later the size of the head had diminished, and the child was able to creep about. When it was four years old the hydrocephalus had disappeared, and the child was able to talk. Dr. Rodionoff seems disposed to refer the cure to the action of the sun's rays."—*Lancet*.

ABSCESS OF THE BRAIN.*

BY T. M. MARKOE, M. D.

A. R., aged twenty-two, native of Syria, peddler, was admitted to the New York Hospital October 2, 1888. He was found in a cellar in a stupid condition, and could give no satisfactory account of himself, nor could he explain how he got into the position in which he was found. It was ascertained, however, that a year before the present accident he had received, while in Havana, an injury of the head. Of this injury there existed as evidence a crucial cicatrix, considerably depressed into the thickness of the scalp, but not suggesting depression of bone. Near the center of this cicatrix is a soft spot, as if at that point the bone was deficient. This scar, which is from an inch and a half to two inches in its longest diameter, is situated parallel to and about half an inch behind the fissure of Rolando, and is firm and sound, and free from any sign of inflammation. His mental condition is dull and apathetic. Pupils normal and react naturally to light. The face gives some signs of paralysis in the obliteration of the wrinkles of the forehead on the right side, slight drooping of the right upper eyelid, and some drawing of the right corner of the mouth. Extrusion of tongue normal. The right arm shows no difference in sensation from the opposite side, but there is a marked indisposition on the patient's part to move it, especially as high as his head. Right leg, some sluggishness of movement, not so marked as in the right arm. His pulse was 68, respiration 21, temperature 100.6° F. He is in a condition of active salivation, but for what the mercury was administered he could not explain.

He was kept quiet in bed and bromide of sodium and iodide of potassium, in doses of thirty grains of the former and ten of the latter, were given three times a day. On the 4th he was occasionally delirious, the delirium not being of a violent character.

October 5th.—To day he had a convulsion which was repeated five times, at intervals of from an hour and a half to three hours. Each convulsion began with twitching of the muscles of the right side of the face, then of the right arm, extending to the right leg, and then becoming general. Each attack lasted about five minutes, during which there was no change in the pupils.

6th.—Two more convulsions to-day of the same character. In the intervals no change could be noticed in his mental condition, the pulse and temperature remaining almost unchanged.

Under the conviction that the symptoms depended upon a meningeal inflammation in the region of the scar of the old injury, vesication with blistering collodion was established over the injured region, covering a space as large as the palm of the hand.

11th.—Since last note the temperature has been normal. He has otherwise remained in the same condition as before. He has had an occasional convulsion of the same character as those described above. The temperature to-day has risen to 101.6°. He also complains of pain in his head, and is more restless than he has heretofore been. The sensation both of arm and leg on the affected side lessened distinctly.

12th.—Both pulse and temperature increased. Examination of scalp showed a fluctuating tumor within the region of vesication, just in front of the old cicatrix, extending over the frontal and parietal region. The left eye closed by œdema of the lids from the proximity of inflammatory swelling. The abscess was opened by a free incision, through which the finger detects bare

bone. Much relief was given by the release of the pus, so that the patient seemed a little brighter. Before the abscess was opened the temperature reached 101°; now about normal.

Taking into consideration the facts that no real improvement had taken place in the man's condition, that the signs of pressure were rather increasing than diminishing, and that the progression of the symptoms gave reasonable ground for believing that intracranial suppuration had already taken place, it was decided that an operation was not only justifiable, but that it afforded the only prospect of relief. After more than usually careful and thorough antiseptic preparation of the shaven scalp, the operation was performed October 13th.

The incision already made for the evacuation of the subcutaneous abscess was enlarged so as to expose the region of original bone injury. The skull was found to be deficient over a space oval in shape and covering more than two square inches. This bone deficiency was filled by a firm, thick, fibrous-looking membrane in which no bone could be detected. The appearances were those of a skull which had been trephined and in which the deficiency had been filled by the usual fibrous cicatrix. Everything about the external surface of this cicatrix was normal. The next step of the operation was to remove this cicatrix and expose the surface of the brain, for it was rightly judged that the cicatrix involved both dura mater and pericranium, and was therefore in direct contact with the cerebral surface. While doing this very carefully with the scissors, and before it was more than half completed, pus began to ooze out and soon flowed freely. About three ounces were evacuated of thick, curdy pus. The removal of the remainder of the cicatrix disclosed the orifice of a cavity extending nearly three inches into the substance of the brain, the walls of which cavity, as far as could be ascertained by the finger passed over them, consisted of unaltered brain substance. After the full evacuation of the abscess cavity a large drainage-tube was introduced, the cutaneous flaps were approximated by a few sutures, and a light antiseptic dressing was applied.

14th.—Some improvement seems to have followed the evacuation of the cerebral abscess. He is more intelligent, and takes more notice of what is going on about him; is less restless, and in every way more comfortable. The dressings were changed after thirty-six hours, and the tube shortened an inch.

15th.—Temperature rose to 101° yesterday, but to-day it is nearly normal. Tube found in the dressings. Discharge free, saturating the dressings. Decided improvement in mental condition. He recognized me to-day, and tried to say he felt better, and to put out his hand to shake mine.

16th.—Has had no convulsion since the operation. There is marked protrusion of brain-substance into the wound, in the center of which protrusion is an opening, which discharges freely, from which the tube has been removed.

17th.—Without any marked change of symptoms, the wound is assuming more and more distinctly the character of fungus cerebri of the non-reparative and unfavorable kind. Discharge quite free.

20th.—No new features have presented themselves till this afternoon, when he became very restless and complained of a great deal of pain in his head. Slight delirium returned for the first time since the operation. His temperature rose rapidly to 105°, and the pulse reached 130, the pupils at the same time becoming contracted.

Thinking that this sudden inflammatory access might depend upon retention of pus in the cavity of the abscess, the opening was enlarged, and a small drainage-tube pushed into the cavity. This gave issue to some retained pus. The drainage-tube penetrated to the extent of three inches. This gave slight temporary improvement of pulse and temperature, but the evidences

* Read before the New York Surgical Society, October 9, 1889.

of paralysis became more and more marked. In fact, the symptoms of general meningitis became more and more distinctly recognizable. Temperature ranged from 102° to 105°. Stupor deepened daily. Cheyne-Stokes respiration, and death on October 25th, twelve days after the operation.

Autopsy.—There are two incisions in the scalp crossing each other over the center of the left parietal bone, each incision being about four inches in length. Beneath the flaps thus made there is an opening through the calvaria, from which a fungoid mass protrudes. This opening is situated in the left parietal bone, is oval in shape, its long diameter being an inch and five eighths, and its shortest being an inch and an eighth. It extends from about half an inch to the left of the interparietal suture, and reaches within a few lines of the temporal ridge. Anteriorly it approaches the coronal suture within about half an inch. The precise situation of the abscess cavity is the most important feature of this description. The cavity has a diameter of an inch and a depth of an inch and a quarter. This shows a diminution of at least two thirds since the evacuation of the abscess. The orifice of the cavity would admit easily the little finger, and is surrounded, and in fact formed, by a mass of granulation-substance, which projects from the surface of the hemisphere about an inch, more abundant anteriorly than posteriorly. The meninges are consolidated and adherent to brain-surface all round the orifice of the cavity, most extensively on its front boundary. No evidence of general meningeal inflammation. The topography of the abscess cavity brings it anterior to the fissure of Rolando, which its posterior border skirts very closely for about an inch. It approaches the longitudinal fissure within perhaps four lines, and anteriorly it occupies the posterior part of the second and a portion of the first frontal convolution, reaching downward to, and perhaps encroaching on, the third frontal convolution. The main development of the abscess, therefore, was in the middle portion of the ascending frontal convolution, with the boundaries above indicated.

The case thus presented offers several points worthy of special note. In the first place, it illustrates the general law, so strongly insisted on by von Bergmann, that abscess of the substance of the cerebral lobes, exception being made of metastatic and tubercular abscesses, is never primary or idiopathic, but always depends upon some traumatism, or upon some focus of suppuration outside of the brain substance itself. In this case the abscess was undoubtedly the result of a double trauma, first an old compound fracture with its resultant cicatrix, and second a recent injury, probably caused by his fall into the cellar in which he was found. That these injuries were the starting-points of the suppuration seems to be indicated not merely by their juxtaposition, but also by the fact that the cicatricial disc which closed the old trephine hole was in fact the superficial or external wall of the pus cavity. In the second place, it is well to note that the absence of high temperature does not necessarily exclude the diagnosis of cerebral abscess. In this case the temperature remained near the normal point throughout, except for two or three days, when it rose nearly to 102° in consequence of an acute suppuration under the scalp after the blistering. It will be noted that after this superficial abscess was opened the temperature fell nearly to the normal point. The pulse also during the whole observation was not materially accelerated. Just before death the sudden rise of temperature to 105° and of the pulse to 130 seemed to indicate general men-

ingitis, which, however, on post-mortem, could not be verified.

A third point of interest in the case is its bearing on the doctrine of cerebral localization. The clinical symptoms pointed unmistakably to the seat of the lesion as revealed by the autopsy; but it may be noticed that the parietic symptoms were at no time strongly pronounced. He could at all times move both arm and leg, but the movements were so feeble and so imperfect, particularly of the arm, that a moderate degree of paralysis could not be doubted. The convulsions, also, beginning in the face, then attacking the arm, and finally the leg, pointed to the middle portion of the fissure of Rolando as their anatomical seat; but, inasmuch as, with the extensive lesion discovered after death, the symptoms during life were so very slight, so far as paralysis is concerned, some explanation seems desirable of the want of quantitative correspondence between the two. It has occurred to me, in thinking over these features of the case, that perhaps the position of the lesion might help us to this explanation, and I have reasoned in this way. All the experimentalists on localization seem to agree in stating that the centers for face, arm, and leg lie in the convolutions on each side of the fissure of Rolando, and not on either one side or the other alone. Thus, to quote from Landois: "The center for the face occupies the lowest third of the ascending frontal convolution and reaches also on the lowest fifth of the ascending parietal. The arm-center occupies the middle third of the ascending frontal and middle three fifths of the ascending parietal convolutions, while the leg-center lies at the upper end of the sulcus and extends backward into the parietal lobule and perhaps on to the superior frontal convolution." This being the accepted view of the extent of the different centers on both sides of the fissure, the fact that the lesion we are studying occupied only one side of the fissure—namely, the ascending frontal convolution, while the ascending parietal convolution on the other side was not involved—seems to me to be a possible and even a probable explanation of the marked want of correspondence between the clinical and the pathological features of the case.

It is to be regretted that no satisfactory examination of his speech condition could be made. He could not speak or understand a word of English, and was, besides, of so low an order of intelligence that in the half-comatose condition induced by the injury we could draw no reliable inferences from his slow and half-mumbled expression. This observation would have been the more valuable as the lesion closely approached the posterior part of the third left frontal convolution.

SOME OF THE MANIFESTATIONS OF SYPHILIS OF THE UPPER AIR-PASSAGES.*

By THOMAS AMORY DE BLOIS, M. D.,
BOSTON.

IN bringing before you this well-worn subject, it is merely to chronicle a few of the different forms of cases as

* Read before the American Laryngological Association at its eleventh annual congress.

seen by the laryngologist in his daily practice, perhaps showing what we may do and what we had better leave undone, with a view of preventing some of the horrible deformities which are so often the sequelæ of syphilis in its nasal and buccal lesions.

It would be most natural to divide the subject into three local varieties—according to whether it occurs in the nasal passages, the pharynx, or the larynx; and these in turn according to its attacking the soft or the deeper or hard structures—call it secondary or tertiary if you will.

The "plaque muqueuse" of the nose is rare compared to the occurrence of "patches" in other localities. I have never known it to resist the ordinary astringent treatment. But when the cartilaginous septum of the nose is attacked it is a very different matter; perforation inevitably follows, and it is with great difficulty that the necrosis is arrested, the process creeping along beneath the mucous surface, and it is generally not checked until it reaches the surrounding bony structures. The falling in of the end of the nose does not necessarily follow; I have seen many cases where the nose was to outward appearance intact, but was within a ruin.

The turbinates and vomer frequently die and remain entombed, the nares being too small to allow of their removal whole.

Two years ago, at the Boston City Hospital, I had a case of this kind, the sequestrum being too tough to be cut with the forceps, and it was without sufficient support to allow of being drilled through with the dental engine. It was found necessary to split up the nose, and I then removed the vomer and one turbinate with the forceps. Long drills will frequently be found convenient for detaching and removing these fragments. Perforations into the antrum are most disastrous in their results, because it is so difficult to properly treat and cleanse these localities and remove what necrosed tissue may exist.

J. W., a fireman by occupation, contracted syphilis six years previous to my seeing him. He had a large perforation into the right antrum. Necrosis was still progressing rapidly; the fœtor was fearful. I removed pieces of dead bone many times, and curetted whenever and wherever possible. He was obliged to leave the fire department on account of the disagreeable odor, and he disappeared unrelieved.

When the destruction of bone extends from the anterior nares down around the incisor teeth, these should be removed, and the necrosed alveolar plates drilled out with the dental burr. It will be found that this operation is an exceedingly bloody one. Iodoform and tannin blown with a great deal of force up into the empty tooth cavities is a good antiseptic dressing.

A. F., an Italian, a Boston Dispensary patient, had syphilis of unknown duration even to himself. One central incisor tooth had come away and one was removed; the drill passed easily up into the nares, through the alveolar processes, which were easily removed, shortening the dental arch considerably. He improved somewhat under large doses of iodide of potassium, the bichloride pill, and cod-liver oil.

The loss of the anterior nasal spine of the superior maxillaries is followed by the frog-like deformity which

disfigures so much. If any treatment short of excision of the bone is possible, it certainly should be diligently followed, for the aspect of the face is more repulsive than when the cartilaginous septum is entirely gone.

In the mouth and pharynx we find our most usual field of syphilitic affections, and, although the destruction of the soft parts advances with lightning-like rapidity, yet it seems as if Nature were here more lavish in her restoring processes.

The perforating ulcer of the velum is the ordinary form which the lesion takes, and, as the part is in such constant motion, the healing is rendered doubly difficult.

It is useless to employ any form of local treatment before the patient is fully under the influence of medicines, and, although mercury is necessary, yet the greatest reliance must be placed on the potassic iodide. Its quick effect upon the symptoms of syphilis is certainly the greatest help we have at our command. In most cases the destructive process may be retarded or checked in twenty-four hours, but sometimes a much longer period is required.

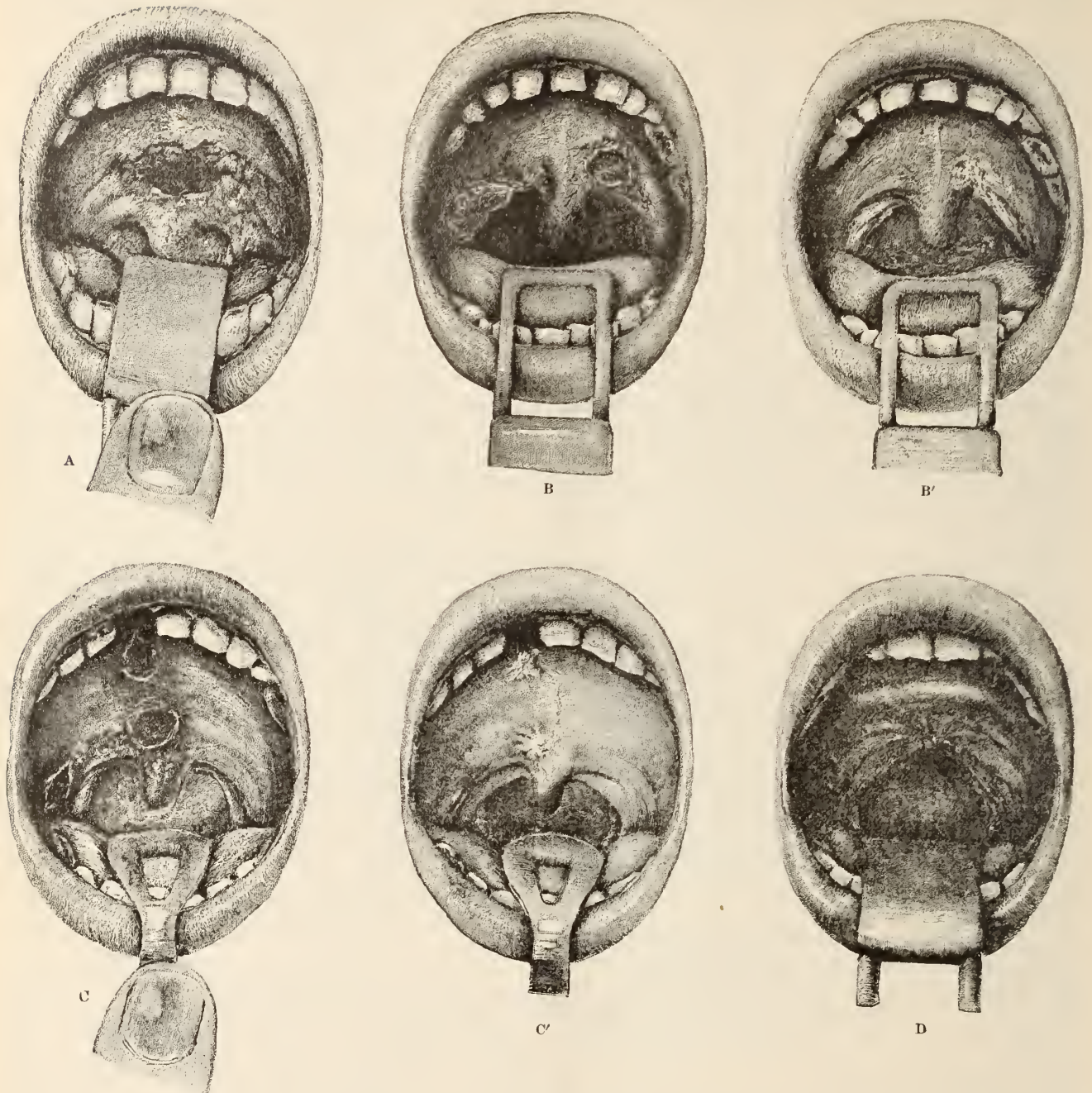
The sketch (A) is from the case of Mr. C., a theatrical manager, who was sent to me, having been under treatment with stillingia for some weeks, during which time the largest single perforation I ever saw had progressed to the size shown in the diagram. After he had been on the iodide for about forty-eight hours I freshened the edges of the ulcer and brought them together with silk sutures; at the end of another day these had completely sloughed out. I attributed my want of success to having been too hasty in my procedures. I then increased the iodide and used the stick nitrate of silver as a caustic and stimulant; under this treatment the perforation closed gradually. I never allowed the edges to harden, and finally, although the opening never closed entirely, it was reduced to such a size that a probe could with difficulty be passed through it, and speech and deglutition were normal.

In a few other cases, where the perforation was not so large, entire closure was effected without suturing.

Mrs. K., a married lady, who had contracted syphilis and concealed it from her husband, and whose palate I was very anxious to save, I had the same experience with. As the transverse perforation was very large, I was afraid one of the two isthmuses would slough, so I sutured very soon after seeing the case. But the sutures sloughed out, and one isthmus also, so that the semi-detached portion hung down on one side, and finally, after causing a great deal of trouble in swallowing, was to a great extent absorbed, and remained as a kind of excrecence at the side of the tonsil, excision having been declined.

Mrs. R. (sketches B and B') showed another example of a perforation which did not heal until the isthmus had been cut through, treatment not having been commenced soon enough. The deep ulcer behind the right pillar was prevented from forming cicatricial adhesions by frequently being stretched open with a probang.

Mrs. T. (sketches C and C'), also a married lady. In this case there was a perforation of the soft palate, with one through the anterior pillar, and a third through the mucous membrane and involving the bony palate. In this case the perforations were treated with nitrate of silver, and the denuded and necrosed palate was curetted with a sharp scoop; the openings healed rapidly, except the one near the tonsil, which, although it healed, never closed.



Of three other cases involving the hard palate, in two the opening healed, in one after curetting and in one after being burred out with the dental burr. In one case, after being burred out under ether and once with cocaine, it did not heal, and finally, after a good deal of necrosis had taken place, the palate plate was removed with forceps at the Boston Dispensary by my colleague, Dr. J. W. Farlow.

Miss N. H., an actress, came to my office complaining that a furuncle had ruptured in her mouth. On examination, I found that there were two syphilitic ulcers involving and exposing the bones of the hard palate. The lower surface was cut out with the burr and the edges were stimulated with caustic, and they healed quickly under iodide of potassium and the corrosive chloride of mercury.

Mrs. O. D. B. (sketch D) had had loss of substance of the soft palate, which had adhered to the pharyngeal wall, quite high up. This closed the posterior nares and occasioned great

discomfort. In syringing through the nose I found that there was, as is usual in these cases, a very small opening into the mouth. This I carefully stretched until the nozzle of a syringe could be passed through. I refrained from detaching the velum from its new adhesions, for, whereas phonation was almost normal (as is invariably the case where the attachment is high) and deglutition all that could be wished, yet I knew that, if the palate were even successfully detached, neither function would continue, without the use of an obturator plate, on account of the great shortening of the velum.

Passing on to the larynx, we find that the worst results in this locality are from the cicatricial adhesions which so frequently take place.

Mr. G. F. had had a certain loss of substance on the tip of the epiglottis, and also bands of cicatricial tissue binding it down on the left side as far as the arytenoid, which was thus greatly crippled in its action. When I first saw him, ten years after

the first infection, he was almost voiceless. Very little effect, except to increase the inflammation, was derived from such operative measures as dilating and stretching the parts. Medication, and the consequent absorption which took place, was of great benefit, and his voice is now quite audible, the motion having been greatly increased and vicarious action from the other side set up.

I might, in conclusion, draw attention to my poor results in any attempt at operative procedures during the activity of the ulcerative lesions of syphilis, for at that time the vitality of the parts seems to be much more feeble. But when, through the action of medicine, the ulceration is apparently arrested, it is the proper time to endeavor to correct or prevent deformities.

In removing necrosed portions of the hard palate with the drill, burr, or trephine, it seems advisable not to perforate the bone, for not only would a fistulous opening be very apt to follow, but, should this not be the case, there would be much more scar contraction than if the outline of the bony parts was left.

INTESTINAL SUPERDIGESTION.

BY W. S. CHRISTOPHER, M. D.,

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THERE is a very prevalent misconception of the conditions of the so-called intestinal fermentation. The idea seems to be very general that fermentation is opposed to digestion—that is to say, that a food may either be digested or undergo a fermentation, but can not be both digested and fermented. Fermentation, broadly speaking, includes digestion, which is the normal or physiological fermentation which food undergoes previous to its absorption. But the fermentation referred to above is not used in this sense, but in the narrower one of pathological fermentation. In studying this subject it must, however, be borne in mind that the digestive processes are fermentations; that they are induced by soluble or unorganized ferments,* and that the pathological fermentations are maintained by organized ferments—different micro-organisms.

Many organized ferments require that the substances which they are to act upon shall first have been modified by some other ferment, either soluble or organized, before they can exert their peculiar action. For instance, the yeast-plant can not ferment cane-sugar directly, while it can induce the alcoholic fermentation in the glucoses. In the fermentation of cane-sugar by the yeast-plant, the sugar is first inverted—that is, transformed into dextrose and levulose, two glucoses—before the alcoholic fermentation occurs. The inverting of the cane-sugar is accomplished by a soluble ferment which accompanies and is probably produced by the yeast-plant itself. At all events, its action precedes the alcoholic fermentation induced by the plant. Similarly, according to Schützenberger, the butyric fermentation is usually, perhaps invariably, preceded by the lactic

fermentation. It seems that certain changes in the albuminous constituents of milk are produced by the lactic ferment, which fit these albumins to nourish the butyric ferment, and thus enable it to grow.

Another illustration of this peculiarity of ferments is found in the different organisms which prevail at different times during the progress of a putrefaction. To what extent the varying susceptibility of individuals to infectious diseases illustrates this phenomenon is not yet known.

In the gastric digestion of proteids the process ends with the formation of peptones, but in pancreatic (tryptic) digestion of proteids the decomposition of the albuminoid molecule is more profound, and we find in addition to the peptones leucine, tyrosine, hypoxanthin, aspartic acid, and glycocholl. With these products the fermenting action of the pancreatic juice probably ends, but this action has paved the way for the growth of micro-organisms, which flourish among the products of the tryptic digestion, and, as the result of their action upon these products, there are produced such bodies as indol, scatol, phenol, fatty acids, ammonia, hydrogen, sulphuretted hydrogen, carbonic acid, and ptomaines (Ewald, Charles, and Landois).

In making artificial digestion experiments, the readiness with which putrefaction sets up in the pancreatic digestion of proteids is very striking, particularly when compared with gastric processes.

Now, since this putrefactive process is impressed upon the products of the digestion, and is not a change produced in the original food-stuff itself, but rather a continuation of the decomposition processes set up in the albuminoid molecule by the digestive ferment proper, it seems to me that the term superdigestion fitly characterizes it. Certainly the term indigestion is eminently improper and misleading.

In general terms, superdigestion may be defined as pathological fermentation of the products of normal digestion. It is always induced by micro-organisms, and varies according to the food.

We may therefore have—

a. Superdigestion of proteids.

b. Superdigestion of fats.

c. Superdigestion of carbohydrates.

a. *Superdigestion of Proteids.*—Proteids are digested both by the gastric and by the pancreatic juices, but hyperdigestion of the products of gastric digestion is infrequent, at least in the stomach, while further change of the pancreatic products is exceedingly common. This difference is probably due less to any doubtful antiseptic action on the part of the gastric juice than to the difference in extent of the digestion or decomposition of the albuminoid molecule produced by the two juices. We may dismiss stomachic superdigestion of proteids and confine ourselves to that which occurs in the intestine. The most interesting of the intestinal decomposition products of proteids, for our present purpose, are the fatty acids, the ptomaines, and the gases, which latter comprise carbonic-acid gas, ammonia, nitrogen, hydrogen, marsh gas, and sulphuretted hydrogen. Certain of the gases unite with each other and form non-volatile salts, and others are formed in relatively small amount, so that in this form of superdigestion statu-

* Fermentations by micro-organisms, producing the same products as the soluble digestive ferments, have no bearing on the present discussion, and are not here referred to.

lence is not a marked symptom, excepting in certain cases of diarrhoea-producing putrefactions, and then the origin of the gas is by no means certain.

The fatty acids do not accumulate in sufficient quantity to produce a strong acid reaction in the intestine, and probably, therefore, do not cause pain. In their further decomposition the fatty acids give rise to gases. The ptomaines are the important products of the hyperdigestion of proteids. These bodies are alkaloids, and, like the vegetable alkaloids, produce their effects through the agency of the central nervous system. They are partly excreted with the feces, and in part absorbed. After absorption they have another gantlet to run in the liver, one of whose functions, as Schiff has shown, is to destroy these bodies. Consequently, it is only when they are formed in excess, or the liver fails to destroy them, that they gain entrance to the general circulation and produce general effects. The nature of the symptoms produced by the ptomaines varies according to the physiological properties of the ptomaine produced. A not uncommon group of symptoms produced in this way comprises constipation, headache, drowsiness, and listlessness, or even a marked depression—the so-called biliousness. Here there seems to be at work a ptomaine or ptomaines possessing the properties of morphine and curare. In infants to whom no opium had been given, but in whose intestines a proteid superdigestion was present, I have occasionally seen the following symptoms: Constipation, coma, contracted pupils, slow and shallow respiration, and a depressed heart-action.

It is exceedingly common to find, particularly in young children, a sudden high fever, often preceded by a convulsion, which can be attributed to nothing else than an intestinal putrefaction, and which disappears completely and finally when a brisk cathartic has removed the putrid contents of the bowel. In infants, conditions closely resembling typhoid fever, but only lasting two or three days, may be attributed to a similar cause.

Certain eruptions on the skin betoken poisoning from the intestinal canal, particularly erythematous eruptions.

I have elsewhere ("Medical News," March 3, 1888) expressed my belief in superdigestion being the important factor in the aetiology of summer complaint.

Generally speaking, the superdigestion of proteids plays a more important rôle in infants and young children than it does in adults.

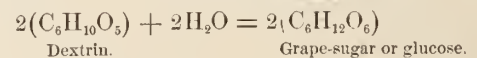
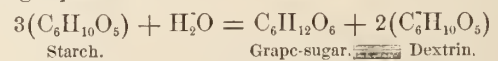
The treatment of the condition follows from its pathology, and consists, first, in the use of a cathartic—preferably calomel—to remove the putrefying masses from the intestine; second, in the administration of an intestinal antiseptic, of which naphthaline is my own favorite, but good ones are found in salol, bismuth salicylate, quinine tannate, and small doses of calomel; and, finally, in withholding all albuminous food until the abnormal process in the intestine has entirely ceased. Of these three steps, the most important is the one relating to diet. By it alone many cases can be controlled. The least important is the use of intestinal antiseptics, and much disappointment arises from depending upon this means alone.

b. Superdigestion of Fats.—The great bulk of the fats

ingested are normally rendered absorbable by emulsification. Normally a small proportion of the fats and abnormally a larger one undergoes a decomposition into glycerin and the corresponding fatty acid. As already indicated, the fatty acids themselves break up under the influence of certain organized ferments, yielding gases—to wit, carbonic-acid gas, hydrogen, and marsh gas. It is somewhat doubtful whether even the small amount of fats which is decomposed into glycerin and fatty acids, under apparently normal conditions, is a process essential to the digestion of these substances, and when a large proportion of the fats ingested undergoes this decomposition, either before or after emulsification has occurred, it must be regarded as a superdigestion. The subsequent gaseous decomposition of the fatty acids is unquestionably a superdigestion. Owing to the comparatively small amount of fat taken as a food, the gases resulting from its fermentation do not of themselves constitute an important clinical factor; but when they go to increase the flatulence produced by other decompositions they must be taken into consideration.

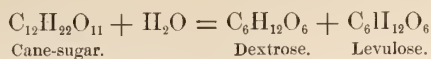
For reasons which will appear further on, the gaseous fermentation of fats occurs most frequently in connection with the gaseous fermentation of carbohydrates.

c. Superdigestion of Carbohydrates.—The carbohydrates used as foods are starch, cane-sugar, maltose, lactose, and glucose. Cellulose is a carbohydrate which is found in connection with other carbohydrates in many substances used as foods. It has a pathological but not a physiological importance. Starch is digested both by the saliva and by the amylolytic ferment of the pancreatic juice. The action of the saliva occurs in the mouth, and continues, to some extent at least, in the stomach, for the experiments of Chittenden and Griswold show that the presence of 0.005 per cent. of hydrochloric acid increases the diastatic action of the saliva, while a stronger acid diminishes it, 0.1 to 0.4 per cent. being sufficient to completely stop the action of the saliva. Nevertheless, even in the presence of the comparatively stronger acid, peptones which are found in the stomach in the digestion of proteids are capable of stimulating the saliva to increased action (Charles, "Physiological Chemistry"). This fact plays an important rôle in the treatment of the superdigestion of carbohydrates in the intestine. The digestion of starch by the saliva, by the pancreatic juice, and by diastase may be represented by the following equations:



According to Mering, the action of saliva on starch produces dextrin and maltose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$. But whether grape-sugar or maltose is produced by this action is immaterial to our present purpose, as both may subsequently undergo the same pathological fermentations.

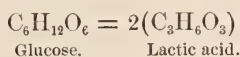
Cane-sugar and lactose, both of which are saccharoses and have the same formula, are digested by being inverted, that is, by being broken up into dextrose and levulose, both of which are glucoses. The action occurs in the intestine and may be represented as follows:



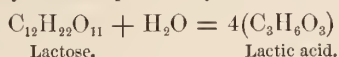
It will thus be seen that all the carbohydrates in their normal digestion are converted into glucoses.

It now remains to be seen what abnormal fermentations the glucoses may undergo in the small intestine. In the first place, glucose, under the influence of one or other of the many lactic ferments, is transformed into lactic acid, which substance, when present in the intestine in large quantity, seems to be a cause of pain.

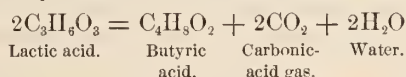
The reaction is as follows:



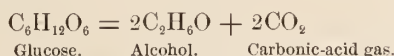
Lactose may break up directly into lactic acid, thus:



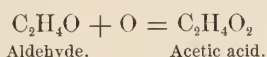
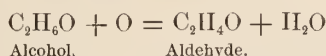
The lactic acid is then acted upon by the butyric ferment, if it be present, with the following result:



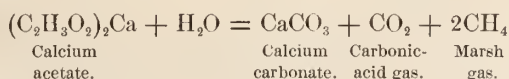
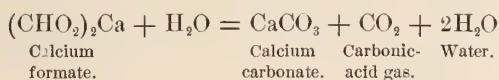
The alcoholic fermentation under the influence of yeast may also occur:



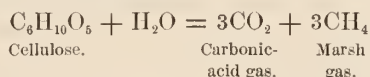
The alcohol may then undergo the acetous fermentation thus:



The following fermentations of the lime salts of fatty acids, which are induced by micro-organisms, should also be noted:



Cellulose, which has been referred to as a carbohydrate ingested with certain food-stuffs, undergoes the following gaseous fermentation under the influence of some micro-organism not as yet isolated:



In summing up, we find that glucose may undergo the alcoholic fermentation with liberation of carbonic-acid gas, or it may be converted into one of several fatty acids, and these, breaking up in their turn, give rise to carbonic-acid gas, and either hydrogen or marsh gas. Bringing together the first and last of this long string of processes, we may say that the carbohydrate foods, in superdigestion, produce large quantities of gas in the intestine.

The clinical features of the superdigestion of carbohydrates are very well exhibited by the following cases:

CASE I.—J. L., aged thirty-three, had been sick about three weeks with severe pain, which could ordinarily be referred to the abdomen, but at times seemed to spread over a much larger

region, so that it was difficult to say where there was not pain. Distress had been constant, but at times during the day was more marked than at others. These times could not be fixed with any reference to meals, but paroxysms of marked severity were very certain to occur at night. From this cause much sleep had been lost. During ten days the gentleman had been able to present himself at his office but two or three times, and was then so weak as to be utterly unable to attend to business. There had been no fever throughout the trouble. His physical appearance was one of emaciation, with features pinched and drawn. The emaciation was so marked as to lead to the suspicion of tuberculosis, but an examination of the lungs revealed them to be perfectly healthy. The abdomen was considerably distended and tympanitic, bowels slightly costive. He had been advised to take a "light" diet, under which ambiguous term was included toast and tea, rice, blanc mange, and other farinaceous foods. Carbohydrate superdigestion being diagnosed, he was given a saline laxative, and his diet limited to albumins—viz., meat, fish, and white of egg, while starches, fats, and sugars were strictly prohibited. Milk, as it contained sugar, was among the foods forbidden. After being deprived of carbohydrates for only two meals, his pain disappeared and did not recur. He was able to sleep the first night, and reported the next day as feeling better than he had for three weeks. This freedom from pain continued throughout the case. Here it was perfectly evident that the withholding of carbohydrates kept out of the intestine those substances which could maintain the abnormal fermentations there going on. The problem then was simply one of withholding this kind of food until the offending micro-organisms had been removed from the intestine, either by the aid of remedies or by their own death from starvation. At the end of a week a small piece of bread was allowed, but the return of gas and a slight colic, a few hours after its ingestion, showed that the intestine was not yet ready to receive food of this character. A strictly albuminous diet was then observed for another week, when an attempt showed that the carbohydrates could be borne. During the period of dieting, intestinal antiseptics were administered, but whether any advantage was gained from their use is very doubtful.

A strictly albuminous diet is quite difficult to maintain, the craving for bread being so great that nothing short of the tortures of this form of dyspepsia will keep the patient's courage up to the required pitch. I have frequently ameliorated this trouble by allowing the patient, toward the end of his period of dieting, a small piece of bread with each meal, and immediately after the meal administering a diastatic ferment. The choice of a diastase is by no means unimportant. The pancreatic ferments should be avoided, lest by their action upon the proteids they pave the way for more trouble. An active malt diastase is to be preferred, and I have found in these conditions an efficient agent in the substance known as maltine. By this means we are enabled to digest starch in the stomach, from which organ it is absorbed, so that little or none of it can reach the seat of the trouble in the intestine. If the patient take more bread than can be handled in this way, he is reminded of his indiscretion some two or three hours after his meal. Instead of using diastase, I have had patients swallow saliva, promoting its secretion by the use of chewing-gum, but the practice has not been followed by any beneficial results.

CASE II.—M. T. had been troubled more or less continuously for two years with constipation, flatulence, and abdominal pain.

The pain appeared usually a few hours after meals, and of late the paroxysms of flatulent colic had become frequent and severe. He was very anæmic, had an anxious expression of countenance, but was not so emaciated as might have been expected from the long duration and severity of his trouble. The principal symptom for which he applied for relief was constipation, and he said that he had not had a stool for two weeks, although he had been taking cathartics continuously. Physical examination revealed an abdomen enormously distended and tympanitic, but not tender. There was no fever and there were no gastric symptoms. He was given ten grains of calomel to take at bedtime, and to be followed by Epsom salts in the morning. He reported the next evening, stating that he had taken the calomel and three doses of salts, but had had no movement from the bowel. Resort was then had to croton-oil, with the effect of producing a copious discharge of gas and liquid and solid fæces. The stools were exceedingly offensive in odor, indicating that a superdigestion of proteid material had occurred as well as superdigestion of the carbohydrates. The carbohydrate trouble being the more pressing, attention was directed to it, and the patient put on a strictly albuminous diet. Owing to the long continuance of the gaseous fermentation, the bowels had become enormously dilated, with corresponding muscular atony, producing a complication peculiarly unfortunate, because of the difficulty of keeping the intestine cleared of the fermenting masses. This difficulty was overcome, however, with suitable cathartics. The necessary period of abstinence from carbohydrate food was in this case unusually protracted, lasting some five weeks, for which reason the plan of digesting bread in the stomach was peculiarly useful. Notwithstanding the greatest care in diet, he had during this period one severe attack of flatulent colic, and, at another time, for several days he required washing of the stomach, but practically he was free from pain throughout the whole period. Some two or three weeks after he was enabled to return to a general diet, and before he had regained completely his strength, he developed an hysterical condition, which baffled handling. The bowel trouble had, however, been entirely overcome.

The condition often occurs in an acute form, and yields readily to proper dietetic treatment. I have seen a good diastase, administered so as to digest the starches in the stomach, quickly arrest a very severe case, even when the starchy foods were only limited and not absolutely prohibited. In a mild form, superdigestion of carbohydrates is a very common affection and yields readily to treatment, a cathartic alone being often sufficient to break up an attack.

All forms of superdigestion are apt to recur.

The Thymus in Cases of Sudden Death in the Water.—"Dr. Nordmann, of Basle, describes a case of sudden death while bathing of a healthy young soldier, who, though a good swimmer, was seized with sudden rigidity and dyspnoea, sinking at once to the bottom. All attempts at restoration to life were fruitless. At the post-mortem examination nothing noteworthy was found except an enlarged and hyperplastic thymus. Dr. Nordmann has since collected three other cases recorded by von Recklinghausen of sudden death in the water, and in all of them an enlarged and pathological thymus was found. Why an enlarged thymus which had given rise to no symptoms during life should suddenly cause death under the circumstances in question is not at all clear, but Dr. Nordmann suggests that it is possible that an acute swelling occurs in the gland, due to the collection of a large quantity of secretion in the follicles of the gland, similar to the condition observed by Friedleben during the process of digestion and assimilation."
—*Lancet*.

A CASE OF PTOMAINÉ POISONING.*

By JAMES P. MARSH, M. D.,

TROY, N. Y.

"It is true, without exception, so far as we know, that the excretions of all living things, plants and animals, are poisonous to the organisms which excrete them."—VAUGHN AND NOVY.

This patient was a bright boy, five years of age, and, although delicate, had never suffered from any severe illness or injury. He had had, somewhat more frequently than other children, short attacks of febrile movement, which had usually been attended by gastro-intestinal irritation and followed in a few days by the expulsion of intestinal worms. One month previous to his fatal illness he had been attacked by measles, which pursued a regular course. His convalescence had been uneventful, excepting that he had occasionally complained of abdominal pain, which, being transitory in character, I had attributed to slight functional disturbance of the bowel and had not considered of enough moment to demand active medication.

During the night of December 6th he was taken with severe abdominal pain accompanied with vomiting. I was called to him at 9 A. M., December 7th, when I found him in the following condition:

Pulse 122, temperature (axilla) 104.5° F., respiration 48. His countenance is flushed and very anxious. Severe paroxysmal abdominal pain is present. Says his head aches. I prescribe bromide of potassium and morphine for the headache and abdominal pain, also antipyrine for the pyrexia.

12 Noon.—Pulse 144, temperature 104° F., respiration 52. He is vomiting. The abdomen is very hot and painful. The headache is severe and he has a slight cough. There is pain over the lower lobe of the right lung, accompanied with a slight friction murmur in this region.

5 P. M.—Dr. E. D. Ferguson calls as consultant. Pulse 140, temperature 102.5° F. He is still vomiting and quite delirious. The abdomen is very "board-like," tympanitic, and painful. The patient has assumed the position of peritonitis. A diagnosis of ptomainé poisoning is reached and a large single dose of calomel and soda ordered, to be followed by five-grain doses of salol. The former treatment is to be continued with the administration of whisky.

8 P. M.—Pulse 148, temperature 100.5° F., respiration 36. The bowels have moved, the passage being very yellow. He is still vomiting, but not suffering from much cough.

December 8th, 12 Midnight.—The temperature having increased, a five-grain powder of antipyrine is given. [This was the last antipyrine administered.]

7 A. M.—Pulse 110, temperature 102.75° F., respiration 38.

3 P. M.—Pulse 152, temperature 100.5° F., respiration 48.

Has had a short sleep, the first since the attack began, and he wakes rational.

6 P. M.—Pulse 134.

8 P. M.—Pulse 118, temperature 101° F., respiration 48. He is very delirious. The bowels are moving constantly. Although considerable flatus escapes by the anus, the abdomen is so greatly distended by gas that I order enemata of turpentine and glycerin.

December 9th, 8 A. M.—Pulse 136, temperature 101° F., respiration 80. Has just vomited black vomit. The breathing is costal. The countenance, position, and general condition are exactly like those of peritonitis.

1 P. M.—Pulse 132, respiration 80. Is throwing up black vomit constantly.

* Read before the Medical Association of Troy and Vicinity, October 2, 1889.

8 P. M.—He is sinking into collapse.

December 10th, 12 Midnight.—He is in a state of collapse.

6 A. M.—He dies.

5 P. M.—Autopsy. Present, Dr. Ferguson, of Troy, Dr. Lyons, of Plattsburgh, and Mr. John Cathill, medical student. Rigor mortis is present but not marked. The abdomen is very much distended and "board-like" to the touch. There are absolutely no evidences of peritonitis. The small intestines are moderately distended with gas and very translucent. The transverse and descending colon are empty and their circular fibers contracted to a remarkable degree. There is no evidence of intestinal ulceration. The mucous coats of the small intestine are congested, but not inflamed. Peyer's patches are normal. No lesions characteristic of typhoid fever are to be found. The stomach is not inflamed, but the veins of the mucous coat are dilated and the organ contains a large quantity of black vomit. The gall-bladder is full, but there is no obstruction of the gall-ducts. The liver is large and hyperæmic, and near the suspensory ligament are areas of infarction. The kidneys are normal. The lungs are healthy excepting slight hypostatic congestion and slight pleural roughness of the lower right lobe. There are fæcal masses in the appendix, but not any appendicitis. No intestinal worms have been discovered.

When first called to this case, the condition was one which impressed upon me the fact that it is not always possible to reach a diagnosis, although all the ante-mortem evidence is in. It occurred to me that the case might be one of febricula, of the prodromes of scarlatina, of gastritis, of typhoid fever, of typhilitis, of meningitis, or of peritonitis, either from perforation of the bowel or from an abscess rupturing into the peritoneal cavity. A febricula could be excluded by reason of the initial intensity of the symptoms. Scarlatina, at first, could not be distinguished, but, as neither rash nor nephritis appeared subsequently, it must be eliminated. As a rule, gastritis does not have so intense a fever nor tympanitic and "board-like" abdomen. Typhoid fever rarely begins so abruptly, and its clinical history does not tally at any point. The bowel symptoms were manifestly too prominent to allow of a diagnosis of meningitis. Rapidly perforating typhilitis, when present, produces more of the symptoms that obtained in this case than any other disease with which I am familiar. Yet, however, there was no history of inguinal tenderness. The abdomen became so hard, tympanitic, and painful to pressure that at no stage of the disease could I entirely free myself from the idea that the peritonæum was more or less involved. But now, that I can deliberately weigh all the symptoms and facts connected with the case, I can find no supposition that accounts for so many of the symptoms as that of ptomaine poisoning.

But the main evidence for the diagnosis must rest upon the post-mortem. Vaughn and Novy declare that "post-mortem examination after sausage poisoning shows no characteristic lesion."* However, in autopsies made upon persons who had died from the effects of eating poisonous mussels, Schmidtman found hæmorrhagic infarctions of the liver. Dr. George A. Hendries, in a report by him of a post-mortem made upon a fatal case of tyrotoxin poisoning, says: "The cæcum, ascending, transverse, and descend-

ing colon were empty, and their circular fibers were tightly constricted, except at intervals where the intestine was distended with gas." This peculiar contraction of the colon was present in my case, and I have never seen it so marked in any other condition. It seems to me that future investigation will show that the contraction of the circular fibers of the colon and the peculiar translucency of the intestines, together with hepatic infarction, constitutes true pathological evidence of ptomaine poisoning.

As regards the exact chemical substance which produced the death of this little patient, I can not declare definitely. However, as hyperthermia was one of the signs, I am inclined to think that the active agent was one or more of the "extractives." The symptoms were somewhat similar to those of tyrotoxin poisoning; but this substance is excluded by reason of the high temperature. It seems to me that it is a tenable hypothesis that, the emunctories having been left in an enfeebled state by the attack of rubeola, there occurred a cumulative storing at some point in the child's system, which came into rapid and fatal action upon the slightest functional disturbance of the stomach and bowels.

And, finally, this case contains for me a grave warning. Inasmuch that of late the surgical dictum to open the belly and make the diagnosis when in doubt and life is threatened has been almost universally accepted and acted upon several times, I almost felt that I was doing wrong to let this child perish without doing a laparotomy. Within the last year, in three cases similar to my own, I have known the practitioners to make a diagnosis of peritonitis with the greatest confidence, and yet a subsequent post-mortem absolutely refuted their position. Had I done laparotomy in this case it would but have added one to the fatal operations; it would not have saved the child, and would have added additional momentum to that feeling of hostility toward abdominal surgery which is so rapidly growing in the lay mind.

57 FOURTH STREET.

Compression of Pulmonary Artery in the Course of Acute Pneumonia.—"Dr. E. Tordieu ("Journal de médecine," No. 14) records the case of a child, five years of age, admitted into hospital for well-marked acute lobar pneumonia of the left upper lobe, who presented a loud systolic murmur in the second left interspace, and traceable toward the axilla. The bruit persisted when the patient was discharged, but so also did the dullness and bronchial breathing at the left apex. The notion of congenital narrowing of the pulmonary artery was unsupported by any collateral evidence; and it was shown that similar bruits have been described which were subsequently proved to have been due to pressure upon the pulmonary artery by enlarged glands or phthisical consolidation. It was therefore surmised that a like causation explained the bruit in this case—a notion which was borne out by the fact that the bruit completely disappeared later, when a soft hæmic apex murmur alone was audible."—*Lancet*.

Tubercle Bacillus.—G. W. Watson, in the "Ohio Journal of Dental Science," says: "I have very good authority for saying that diseased roots and teeth have a great deal to do in starting tubercular trouble in the lymphatic glands of people predisposed to this disease. Tubercle bacilli, gaining admission to the jaw through the diseased teeth, speedily infect the structures in their neighborhood. It would be right, therefore, for us to look well to the teeth of patients having a tubercular tendency, and see that they keep their mouth in a thoroughly healthy and aseptic condition."

* "Ptomaines and Leucomaines," Philadelphia, 1888, p. 42.

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GONORRHOËAL RHEUMATISM.

IN the "Normandie médicale" for September 1st, M. Buffet publishes some interesting observations upon this subject. He calls attention to the fact that the affection fails to follow the classic type, as regards its being confined to single joints and attacking the large joints only. On the contrary, it affects the small joints as well; and may invade other tissues—such as the sheaths of tendons, the muscles, nerves, and areolar tissue. There is much in common in this disease with acute articular rheumatism. Several joints are successively attacked. But there is not the same mobility, there is no appreciable fever, no profuse perspiration, and no urinary changes. The form of disease under consideration lasts longer than classic articular rheumatism, its duration sometimes extending over months. Resolution is not its only termination. There may be ankylosis, complete or partial, and muscular atrophy. It may terminate in rapid suppuration, as in a case cited in which death ensued in eight days as a sequence of suppurative inflammation of the knee. One attack affords no protection against a second, several patients suffering from three or four attacks; which causes Jaccoud to predict for the unfortunate victim of gonorrhœa with articular manifestations a repetition of his woes should he chance to contract gonorrhœa again. This author also maintains that the treatment of the gonorrhœa present is without influence upon the development of the articular affection. The amount of discharge appears to bear no relation to it, either. And salicylate of sodium is positively without any effect whatever.

The physician's first duty is to place the limb in a good position, in view of possible ankylosis. As to other measures, revulsives and blisters are chiefly of value. When the effusion is abundant, the joint may be punctured. Tonic treatment is always indicated—quinine occupying the first place as a remedy—for the depression is great. Massage, sulphur douches, and electricity are useful in combating stiffness of the joints and muscular atrophy. To sum up: Gonorrhœal rheumatism may be confined to one joint, but may attack several joints. Small joints may be affected as well as large ones. Tendinous sheaths may be invaded as well as muscles, nerves, and cellular tissue. The clinical difference between this and ordinary articular rheumatism consists in the absence of fever and perspiration and in the fixity and duration of the lesions. The disease may terminate in ankylosis, suppuration, or muscular atrophy. Treatment consists in a good position for the limbs, revulsion, massage, and electricity. Salicylate of sodium and anti-gonorrhœal remedies are without effect. Tonics are indicated.

THE HYGIENE OF THE EYE.

GALEZOWSKI, through the medium of the "Gazette hebdomadaire des sciences médicales," gives excellent suggestions concerning the circumspect use of the eyes for close work. Spectacles are a medicine, the remedy for ametropia. Appropriate glasses should correct every error of refraction as soon as it is discovered. Only in this way can sight be preserved without further damage. In latent hypermetropia glasses are not necessary for distant vision. Established hypermetropia requires the constant use of glasses, especially when presbyopia exists. Myopic eyes, above all others, require the most rigid hygiene. Without it grave intra-ocular changes result that are beyond the reach of therapeutic measures. In marked myopia there is perpetual effort made by the eye to obtain binocular vision during work. Experience has proved that such vision is not secured when the distance for distinct vision is less than from 75 to 90 inches. Under such circumstances work soon strains the eye, bringing about muscular asthenopia. Intra-ocular disorders quickly follow, if this condition of myopia is not overcome. It should be corrected by the weakest glass that will secure good sight, which is exactly what the myopic patient avoids, preferring the strongest glass—one that calls accommodation and convergence into action, the most important thing not to do. When myopia exceeds 3.5 or 4 diopters, glasses should always be used for work. Ordinarily, a medium degree of myopia requires glasses of only half the strength of those used for seeing at a distance. They must be suitable for the kind of work and the wearer, who should not use them for greater distances than from 75 to 90 inches. Other damage is done by calling accommodation and convergence into play. Eyes that are sensitive, strained, or affected with opacities require glasses of neutral tint, that allow no yellow rays to pass, which diminish the intensity of solar light without altering its composition. In the choice of a profession, attention must be paid to the visual power of the individual, as it is impossible to make a good soldier of a man who has myopia to the extent of 6 diopters; so, also, is it impossible to make such a man an engraver or a type-setter. Rest should be given the eye during work. If this precaution is followed, steady reading or writing is possible without producing congestion, partial closing of the lids, and sensitiveness to light. In every occupation the most comfortable and convenient posture is the one to choose, for thus strain is averted. Persons who write much should avoid bending over, as this quickly causes fatigue. It is well to write sitting for a time, and then to write standing. Reading in bed is an abomination, tending to provoke strain and asthenopic disorders.

MINOR PARAGRAPHS.

OBESITY AND STERILITY.

IN the "Revue générale de clinique et de thérapeutique" Dr. Philbert gives some interesting facts concerning the relation of obesity to sterility, and the favorable results obtained by hygienic measures for the reduction of fat. In the male, ex-

cessive embonpoint retards the development of the generative organs, producing atrophy in certain cases, while in others the conditions are similar to those that obtain in childhood. After adult age, polysarcia notably diminishes sexual desire, which returns with the loss of the superfluous flesh. In the female, amenorrhœa and dysmenorrhœa result from excess of fat. An accumulation across the abdomen exerts mechanical pressure that impedes utero-ovarian function. Possibly ovulation fails of accomplishment in consequence of defective nerve excitation. The requisite loss of flesh puts the organs into their normal state, rendering fecundation possible. Five cases are recorded of very stout women married several years without offspring, who became mothers in consequence of treatment that did away with obesity. This treatment included a course of baths and mineral waters, such as those of Brides and Salins-Montiers. Fertility ceased whenever the obesity returned. Some of the women gave birth to several children, the first usually arriving during the year following the beginning of treatment.

THE SANITARY EFFECTS OF BURNING RUBBISH.

THE secretary of the Michigan State Board of Health has issued a circular in which he mentions an unusual deficiency of ozone in the air of Lansing and a sense of want of air felt by the inhabitants, accompanied in some instances by weakness of the heart's action, which he thinks are attributable to vitiation of the atmosphere in consequence of numerous fires in swampy places, due to the drouth, and to fires kindled in the streets for destroying refuse. He even suggests that an increased prevalence of certain diseases, such as inflammation of the tonsils, pleurisy, cerebral inflammation, and croup, may have been partly due to these fires. He thinks they are chiefly noxious at night, when the wind commonly dies out, and asks that such fires as are necessary be kindled in the morning. His inferences, it will be seen, are quite at variance with the old practice of building bonfires against pestilence. Coming from such a careful observer, they are, however, worthy of attention.

THE REPORT OF THE STEVENS COMMISSION.

THE commission appointed about two years and a half ago by the New York Neurological Society to investigate the feasibility of curing epilepsy and chorea by the correction of ocular defects, maintained by Dr. George T. Stevens, made its report on Tuesday evening of this week. The commission consisted of Dr. Edward C. Seguin, chairman, Dr. M. Allen Starr, secretary, Dr. Charles L. Dana, Dr. W. R. Birdsall, Dr. David Webster, Dr. W. Oliver Moore, and the editor of this journal. The plan of procedure was for the neurological members of the commission to furnish Dr. Stevens with a certain number of epileptics and choreics, and to report upon the results of their treatment by him. The commission could not report a single cure, but it reported a number of instances of improvement. Dr. Stevens protested against the commission's report as premature, and read a reply in which he maintained that the inquiry had been improperly conducted, and that the results had not in all instances been fairly recorded in the report. A general discussion was begun, but was adjourned to the next meeting.

THE DIGESTIVE ORGANS AND MELANCHOLIA.

BEFORE the recent Congrès international de médecine mentale, Dr. Beltecourt-Rodrigues, of Portugal, read a paper upon this subject, an abstract of which is given in the "Progrès médical." While not overlooking the general causes of insanity, he said, it was also of extreme importance to understand its prox-

imate causes. In a certain number of persons suffering from melancholia the writer had observed gastro-intestinal disturbances which, according to recent theories, were produced by toxic elements circulating in the organism. This had led him to imagine that infection from the alimentary canal might be a cause of melancholia—an hypothesis that was sustained to a certain degree by the complete recovery of several patients suffering from this form of mental disease, after antiseptic treatment directed to the digestive tract.

RABIES AMONG DEER.

THE deer of Ickworth Park, England, having become diseased, Mr. Adami, the demonstrator of pathology at the University of Cambridge, was invited to study the causes of the trouble. An inquiry by the agents of the Privy Council had already been made, which had declared the disease to be anthrax. Mr. Adami was not able to confirm this decision, but after a thorough study reported the cause to be rabies, a disease that has not often been found among deer. The "British Medical Journal" states further that Mr. Adami was so unfortunate as to inoculate himself. On the seventeenth day after this accident he resorted to Pasteur's Institute at Paris, and was treated for inoculated hydrophobia. On the ninth day after the beginning of the treatment he had premonitions of the disease, but these did not progress, and the unfortunate pathologist now considers himself cured and protected.

CORNELL UNIVERSITY'S MEDICAL ASPIRATIONS.

A RECENT report by President Adams, of Cornell University, seems to put forth a "feeler" after a medical department, in order that Ithaca may have a full-orbed university, *totus, teres atque rotundus*. President Adams is reported to have expressed the wish that such a department, with a large endowment, might be established in New York or Brooklyn, which might very properly be styled "the College of Medicine of the Cornell University." Is this a bid to the Bellevue Hospital or the Long Island school to come in under the ægis of Cornell? They are about the only ones remaining that have not a placental attachment; but neither of them can be said to enjoy "a large endowment."

SICKNESS FROM POLLUTED WELL-WATER.

AT West Albany there are 1,200 men employed in the carshops. Among them there has been much sickness of a febrile character, called "malarial," but which seems to be referable to a bad quality of drinking-water taken from wells. There have been absent as many as 200 workmen in twenty-four hours. Dr. Baleh, secretary of the State Board of Health, has condemned the wells formerly in use, and they have been closed. Since then the number of new cases has been much reduced.

THE NEW YORK PHYSICIANS' MUTUAL AID ASSOCIATION.

WE would call the attention of those of our readers who are members of the association to the notice, in our list of "Society Meetings for the Coming Week," of the annual meeting, on Thursday evening, at the Academy of Medicine. The importance of the association's work can hardly be over-estimated, and it is desirable that it should receive the personal attention of all the members.

THE TENTH INTERNATIONAL MEDICAL CONGRESS.

IN a letter to Surgeon-General John B. Hamilton, of the Marie-Hospital Service, dated October 7th, Professor Virchow

says: "The organizing committee of the Tenth International Medical Congress is now constituted. I myself am elected president, and Dr. Lassar (Karlstrasse, 19, N. W.), secretary-general. We shall be very happy to receive the 'Transactions of the Ninth International Medical Congress,' and we hope to see you and many of your countrymen at the new session."

THE CARTWRIGHT LECTURES.

It is announced that Dr. Billings, of the army, is to give the course this year, on the 14th, 20th, and 22d inst., at 8 p. m., at the College of Physicians and Surgeons, on the subject of "Vital and Medical Statistics." In ordinary hands the importance of this theme would stand in inverse ratio to its attractiveness, but nobody needs to be told that Dr. Billings's genius will invest it with liveliness.

THE "MEDICAL MIRROR."

This is the title of a "Monthly Reflector of the Profession and its Progress," the first number of which is announced for January, 1890, to be edited by Dr. I. N. Love, of St. Louis. The prospectus states that, while the new journal will be made of interest to physicians in general, it will earnestly endeavor to accomplish the complete organization of the profession of the Mississippi Valley. Dr. Love seems specially qualified to carry his undertaking to a successful issue, and we look to see it done.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 4, 1889:

DISEASES.	Week ending Oct. 29.		Week ending Nov. 4.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.	42	16	32	9
Scarlet fever.	41	4	35	1
Cerebro-spinal meningitis	4	4	2	2
Measles.	42	2	13	1
Diphtheria.	80	12	74	16
Small-pox.	1	0	0	0

Hygiene at Gettysburg.—A professorship of hygiene and physical culture has been endowed, in the sum of \$25,000, at the Pennsylvania College, at Gettysburg, by the parents of the late Dr. Charles H. Graff.

The American Association for the Study and Cure of Inebriety will give a dinner to its president, Dr. Joseph Parrish, at his home, in Burlington, N. J., on Tuesday, the 12th inst., on the seventy-first anniversary of his birth.

Changes of Address.—Dr. Edward J. Birmingham, to No. 23 East Forty-sixth Street; Dr. Louise Fiske Bryson, to No. 38 West Thirty-eighth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from October 20 to November 2, 1889:*

MEARNS, EDGAR A., Captain and Assistant Surgeon. Granted leave of absence for two months. Par. 5, S. O. 244, A. G. O., October 19, 1889.

KENDALL, WILLIAM P., First Lieutenant and Assistant Surgeon. Leave of absence extended one month. Par. 6, S. O. 244, A. G. O., October 19, 1889.

So much of Par. 2, S. O. 241, October 16, 1889, from this office, as directs BRECHEMIN, LOUIS, Captain and Assistant

Surgeon, to report for duty at Fort Apache, Arizona Territory, is revoked. He will report in person to the commanding officer, Presidio of San Francisco, Cal., for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

CLENDENIN, PAUL, First Lieutenant and Assistant Surgeon. Relieved from duty at Fort McIntosh, Texas, and will report in person to the commanding officer, Camp Eagle Pass, Texas, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

CHAPIN, ALONZO R., Captain and Assistant Surgeon. Relieved from duty at Newport Barracks, Kentucky, and will report in person to the commanding officer, Fort Yates, Dakota, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

SHANNON, WILLIAM C., Captain and Assistant Surgeon. Relieved from duty at Fort Yates, Dakota, and will report in person to the commanding officer, Fort Apache, Arizona Territory, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

RAYMOND, HENRY I., First Lieutenant and Assistant Surgeon. Upon being relieved from duty at Fort Bidwell, California, will report in person to the commanding officer, Newport Barracks, Kentucky, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

DAVIS, WILLIAM B., Captain and Assistant Surgeon. Relieved from further duty at Fort Porter, New York, and will report in person, upon expiration of his present sick leave of absence, to the commanding officer, Fort Preble, Maine, for duty. Par. 6, S. O. 248, A. G. O., October 24, 1889.

WAKEMAN, WILLIAM J., Captain and Assistant Surgeon. Relieved from duty at Fort Walla Walla, Washington Territory, and will report in person to the commanding officer, Fort Bidwell, California, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

EGAN, PETER R., Captain and Assistant Surgeon. On being relieved from duty at Camp Eagle Pass, Texas, will report in person to the commanding officer, Fort McIntosh, Texas, for duty at that station. Par. 7, S. O. 248, A. G. O., October 24, 1889.

By direction of the Secretary of War, so much of Par. 2, S. O. 24, October 16, 1889, from this office, as relates to HEGER, ANTHONY, Lieutenant-Colonel and Surgeon, is amended to read as follows: Lieutenant-Colonel Anthony Heger, surgeon, is relieved from further duty in the Division of the Atlantic, and will at once report to the Major-General commanding the army for duty in this city. Par. 5, S. O. 252, Headquarters of the Army, A. G. O., October 29, 1889.

By direction of the Secretary of War, Par. 3, S. O. 24, October 16, 1889, from this office, is so amended as to grant O'REILLY, ROBERT M., Major and Surgeon, leave of absence for six months, with permission to leave the United States, to take effect November 1, 1889. Par. 6, S. O. 252, A. G. O., Washington, D. C., October 29, 1889.

FORWOOD, WILLIAM H., Major and Surgeon, by direction of the President, is detailed as a member of the Army Retiring Board at St. Paul, Minn., convened by War Department Order dated January 12, 1889, published in S. O. 10, January 12th, from Headquarters of the Army, *vice* MEARNS, EDGAR A., Captain and Assistant Surgeon, hereby relieved. Par. 12, S. O. 254, A. G. O., October 31, 1889.

GIBSON, JOSEPH R., Major and Surgeon. Granted leave of absence for seven days, to take effect from date of being relieved from duty at Fort Sheridan, Illinois. Par. 9, S. O. 249, A. G. O., October 25, 1889.

GORGAS, WILLIAM O., Captain and Assistant Surgeon, by direction of the Secretary of War, is relieved from temporary field

duty in the Department of the Missouri, and will join his proper station (Fort Barrancas, Florida). Par. 2, S. O. 251, A. G. O., October 28, 1889.

MAUS, LOUIS M., Captain and Assistant Surgeon. Granted leave of absence for two months on surgeon's certificate of disability. Par. 11, S. O. 249, A. G. O., October 25, 1889.

By direction of the Secretary of War, so much of Par. 10, S. O. 242, October 17, 1889, A. G. O., as directs MAUS, LOUIS M., Captain and Assistant Surgeon, to report in person for duty at Fort Stanton, New Mexico, to relieve Captain MARCUS E. TAYLOR, Assistant Surgeon, is revoked, and Captain TAYLOR will proceed to Boise Barracks, Idaho Territory, as directed in said order, as soon as medical attendance shall be provided for Fort Stanton. Par. 10, S. O. 249, A. G. O., October 25, 1889.

CABELL, JULIAN M., First Lieutenant and Assistant Surgeon. Granted leave of absence for two months, to take effect about November 10, 1889. Par. 7, S. O. 249, A. G. O., October 25, 1889.

By direction of the President, the Army Retiring Board convoked at Vancouver Barracks, Washington Territory, by War Department Order dated December 15, 1888, published in S. O. 292, December 15, 1888, from Headquarters of the Army, is dissolved. Par. 1, S. O. 250, A. G. O., Washington, October 26, 1889.

Appointments in the Medical Department.

WILLCOX, CHARLES, First Lieutenant and Assistant Surgeon, to rank from October 29, 1889.

MCVAY, HARLAN E., First Lieutenant and Assistant Surgeon, to rank from October 29, 1889.

FRICK, C. B., First Lieutenant and Assistant Surgeon, to rank from October 29, 1889.

Death.

TAYLOR, MORSE K., Major and Surgeon (retired), died October 20, 1889, at San Antonio, Texas.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 2, 1889:*

NASH, F. S., Passed Assistant Surgeon. Detached from duty in the Bureau of Medicine and Surgery and ordered to the Petrel. November 14, 1889.

BOGERT, E. S., Medical Inspector. Ordered to examination preliminary to promotion to medical director.

NORTON, O. D., KITE, I. W., and STONE, E. P., Assistant Surgeons. Ordered to examination preliminary to promotion to passed assistant surgeons.

Society Meetings for the Coming Week:

MONDAY, *November 11th*: New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); Lenox Medical and Surgical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Boston Society for Medical Improvement; Gynecological Society of Boston; Burlington, Vt., Medical and Surgical Club (annual); Norwalk, Conn., Medical Society (private); Baltimore Medical Association.

TUESDAY, *November 12th*: Medical and Chirurgical Faculty of Maryland (semi-annual, first day, Hagerstown); New York Medical Union (private); Medical Society of the County of Rensselaer, N. Y.; Camden, N. J., County Medical Society (semi-annual—Camden); Newark, N. J., Medical Association; Trenton, N. J., Medical Association (private); Norfolk, Mass., District Medical Society (Hyde Park); Baltimore Gynecological and Obstetrical Society.

WEDNESDAY, *November 13th*: Medical and Chirurgical Faculty of Maryland (second day); New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medico-legal Society; Medical Society of the County of Albany, N. Y.; Pittsfield, Mass., Medical Association (private); Worcester, Mass., District Medical Society (Worcester); Philadelphia County Medical Society.

THURSDAY, *November 14th*: Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; New York Physicians' Mutual Aid Association (annual); Medical Society of the County of Cayuga, N. Y.; South Boston, Mass., Medical Club (private—annual); Pathological Society of Philadelphia.

FRIDAY, *November 15th*: Chicago Gynecological Society; Baltimore Clinical Society.

SATURDAY, *November 16th*: Clinical Society of the New York Post-graduate Medical School and Hospital.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN THEORY AND PRACTICE OF MEDICINE.

Meeting of October 15, 1889.

Dr. R. C. M. PAGE in the Chair.

Enteralgia and Chronic Peritonitis.—Dr. A. JACOBI read a paper on this subject. He said that cases of primary peritonitis of any kind were very rare, and that these were mostly due to traumatism, or from wounds and probing of the same, and from paracentesis for ascites. Most cases, however, were of a secondary nature, with very numerous causes. These cases might arise under the influence of general diseases—rheumatism, alcoholism, scarlatina, measles, erysipelas, malaria, scurvy, tuberculosis, carcinoma, etc. Among the most frequent causes of peritonitis were the catarrhal and inflammatory diseases of the female sexual organs. The writer thought it was very easy to understand how an intestinal catarrh developed into an enteritis and then into peritonitis, if we remembered the facility with which anatomical changes took place in the mesenteric glands in the course of such a disease. The diagnosis of chronic peritonitis was frequently obscured by such conditions as adhesions around tumors, a movable kidney which had become fixed, and intestines which had become glued together—all of which had no recognizable symptoms. In chronic peritonitis the respirations were not necessarily accelerated. Particularly was this true in pelvic peritonitis. There might be occasional vomiting if there happened to be an existing acute catarrh. Constipation was frequent; diarrhoea not unusual. The abdomen was apt to be tumid. Chronic peritonitis was diagnosed with more or less certainty in the following manner: The patient should lie upon the back, with the lower extremities extended. Then flexion and extension of the limbs would often cause pain in the abdomen. Then, by palpation over the abdomen, much might be discovered which would point to adhesions or exudations. By pressure, very distinct and circumscribed pain might be felt by the patient. Pain was a very frequent symptom in chronic peritonitis. It might be mild, severe, of short duration, or permanent. Its variability depended often on the degree of irritation or congestion. Acute attacks were frequent when there was a cause for exacerbation. The sent of

pain varied with the location and extent of the lesion. Extensive peritonitis in the pelvis might not give rise to pain unless waked up by defecation, cohabitation, or micturition. In some cases the pain could not be diagnosticated from the enteralgia produced by other causes—such as flatulence, fermentation, and abnormal contents in the abdomen. Anatomical changes in chronic peritonitis gave rise to the very same symptoms and conditions. The results of this disease were varied. A simple attack of exudation might shape the future of the patient so far as health was concerned.

Tabes mesenterica was another form of chronic peritonitis the recognition of which the author considered of practical importance. The main symptoms common to every form and case of tabes mesenterica were atrophy and tumid abdomen. Emaciation and atrophy reached a degree hardly ever met with in any other morbid condition. The subcutaneous fat rapidly disappeared. The skin was flabby, thin, and inelastic; around the limbs it was loose and baggy. In the beginning the muscles could be recognized; afterward even they became emaciated to such an extent that their outlines disappeared, and those of the bones were distinctly perceptible. The eyes lay deep in the orbit, and had a peculiarly dry and hungry look. The bones of the face, with the thin, flaccid, dry, and scaly skin over them, furnished a terribly senile expression. The surface was mostly cool, the limbs were cold, the cutaneous veins were very distinct and blue, and much dilated over the chest, but still more so over the abdomen. The voice was thin and tin-like, the cry tearless, the pulse slow, from exhaustion of the heart muscle, or, more frequently, rapid, thin, and compressible. The lymph bodies of the neck and inguinal regions, sometimes also of the axilla, were tumefied. The preceding symptoms were more or less common to all cases. There were many, however, which exhibited numerous variations in important particulars. The appetite might be ravenous or entirely lost. Some cases began with little or no diarrhœa, but in all, the stools were fœtid. The majority, however, commenced with a severe form of intestinal catarrh, attended with numerous offensive discharges. The peculiar foul, musty, pungent, ammoniacal odor was due in part to acids, formed by the fat which had not been absorbed, sulphides, and other products of putrefaction. In the farther development of the morbid condition there might be constipation, but diarrhœa was more frequent. It might not be very copious or the evacuations very numerous. In some cases there was tenesmus, with but little substance; in others the quantity was large and expelled suddenly, in an instantaneous gush. The temperature varied. It might be normal or subnormal or elevated. The tumid belly was absolutely painless in some cases, but very sensitive in others, the latter mainly in those with elevated temperature. The large size of the abdomen, with its network of dilated veins, contrasted fearfully with the ghastly and atrophic limbs. It might be large enough to press the diaphragm upward and interfere with the function of the heart and lungs. The nature of the tumefaction varied. It might be tense or flabby, hard or soft, doughy or firm, uniform or irregular. Nodules or lumps of different shapes and sizes might be discovered by palpation. Gentle percussion would elicit tympanites. It was not unusual to find œdema, extensive dullness from fatty liver, albuminuria, local inflammations of the abdominal surface connected with abscesses in the peritonæum, and cough depending on tubercular disease of the lungs. The author thought that the variety of symptoms belonging to tabes pointed distinctly to different morbid processes, and that these symptoms appeared to prove that there were several distinct forms of tabes which depended on different causes, and were attended with varying anatomical alterations. He said that tabes mesenterica ought no longer to appear as a nosological entity in the text-books. The former

belief, that death was due to failure of absorption, was no longer tenable. Starvation might take place through imperviousness of the mesenteric lymph bodies. The first changes which took place in them were of a congestive and inflammatory nature, and secondary in character. Primary changes, when they did occur, were mostly neoplastic. As in other glands, the inflammation might be a simple one, or suppurative, fibrous, caseous, or tubercular. Simple adenitis was occasioned by any kind of irritation. The first process consisted in dilatation of the blood-vessels, with reddening, softening, and succulence of the tissue, endothelial changes in the lymph spaces, and new formation of cells. Afterward the red discoloration was replaced by a grayish-white color, now and then interrupted by small blood-points which would turn into pigment. The difference between the cortical and medullary substance would fade or disappear. The capsule became tense over its swollen contents. These were the cases in which a complete recovery could be expected. Besides the simple secondary hyperplasia of the mesenteric glands which resulted in obstruction, and the tubercular infiltration which terminated in the same disturbance of function, there was a third condition which led to the symptoms called tabes mesenterica—viz., chronic tubercular peritonitis. It was quite frequent, but its symptoms varied in duration and severity. The capability of recovery in this disease was sometimes surprising. The present justifiable belief was that only those cases of chronic peritoneal tuberculosis would have a chance of recovery which were local, and not the result of general tubercular infection. In estimating the size of a child's abdomen, it should be borne in mind that it was normally larger in proportion than that of the adolescent or adult. The diagnosis of tubercular peritonitis was apt to be difficult. There were many cases which could not be distinguished from non-infectious peritonitis and simple inflammatory processes. Many of the caseous tuberculizations were small and inaccessible to an accurate physical examination. Where the distension of the stomach appeared after an intestinal catarrh the stools either improved in character or remained offensive. If the temperature continued high and the symptoms exhibited a typhoid character, the existence of an acute attack of tubercular peritonitis was probable. The prognosis was always uncertain, except in the very worst cases. It was absolutely fatal when the tabes mesenterica meant peritoneal and glandular tuberculosis complicated with or depending upon generalized tuberculosis.

Dr. F. DELAFIELD said that he was in the habit of regarding these cases of peritonitis from an anatomical standpoint. He made the following distinctions: 1. Cases of chronic peritonitis in which the lesion was only a form of connective-tissue adhesion. 2. When there existed connective-tissue adhesions and also serous or purulent fluid. 3. Chronic peritonitis, with increased thickening, and fluid present in quantities. In the first class of cases there were no symptoms, and the adhesions were revealed only at an autopsy. The patients would have localized pain, referred to some part of the colon, and might have adhesions or not. It was very difficult to determine. To distinguish these cases from a tubercular peritonitis was also difficult, and when there existed waxy liver as a complication they became troublesome. Not infrequently such cases behaved like carcinoma of the liver. Chances of error also lay in stenosis of the pylorus, giving rise sometimes to an enormously dilated stomach, which might occupy almost the entire abdomen. Pain in different parts of the abdominal cavity was frequently misleading. Sometimes it was a reliable indication, but at other times could not be depended upon at all. Then chronic peritonitis, with both adhesions and fluid, was difficult to distinguish from tubercular peritonitis and from the various forms of carcinoma of the peritonæum. Very much depended

upon the particular shape that the peritonitis took. The intestines might be matted in some parts of the abdomen, there might be fluid in another part, and organized connective tissue might divide the abdominal cavity into several compartments. As to the third form, in which diffuse thickening existed with presence of fluid, but without adhesions, it was difficult to distinguish from tubercular peritonitis and from simple cancer of the peritonæum or cirrhosis of the liver. This latter was especially difficult when the peritonitis involved the capsule of the liver. The capsule would become enormously thickened and the liver diminished in size, as in true cirrhosis.

Dr. W. H. THOMSON thought the diagnosis of this condition extremely confusing. He had never made a diagnosis of chronic peritonitis without a mental reservation that the patient might really be suffering from something else. He remembered two cases of cancerous disease of the peritonæum which had in common a feature of some value in distinguishing the condition from that of tubercular peritonitis. The first case was that of a lady who, at forty-five years of age, gradually began to decline in health and present symptoms of ascites. The pains of which she complained were very fugitive, and the only local symptoms were rigidity of the abdominal walls on palpation and pressure. At no time was there any rise of temperature. The particular symptom was the extremely low percentage of urea in the urine. The autopsy showed acute carcinoma of the peritonæum. The pain which the patient had complained of most often, and which had been on the left side, was explained by the fact of the disease having involved two of the false ribs of that side. In the second case to which he had referred cancer of the peritonæum was found. The same condition of the urine existed before death. He believed Germain Sée's diagnostic points in cancer of the stomach and peritonæum were tenderness and enlargement of the post-clavicular glands. In one case of cancer of the peritonæum the speaker had been able to verify this suggestion. In cancer of the peritonæum there was no exacerbation of temperature, while in tuberculosis there was. He had a case at present in a youth nineteen years old, with a history of constipation and pain in the abdomen, hip, and knees. There was also considerable cutaneous hyperæsthesia. For some weeks past there had been a temperature of 101° to 102° F. The striking feature was the progressive emaciation. There was very little doubt that the case was one of tubercular peritonitis. There was some redness about the umbilicus, which was a thing the speaker had not noticed before. When ascites complicated these diseases the difficulties of accurate diagnosis became insurmountable.

Dr. LEONARD WEBER said that he had not seen a case of chronic peritonitis which was not the result of infection. He was not inclined to believe that any such form existed, though it might. He looked at the conditions described in the first part of the author's paper—in which, at some time in the patients' histories, there had been acute attacks of peritonitis—as conditions consequent upon those attacks. Some of the cases described seemed to indicate the result of adhesions, lacerations and perforations, the patients dying of acute perforating peritonitis and not chronic peritonitis.

NEW YORK ACADEMY OF MEDICINE.

Meeting of October 17, 1889.

The President, Dr. ALFRED L. LOOMIS, in the Chair.

On Gunshot Wounds of the Abdomen, with Special Reference to Wounds of the Intestines.—Dr. L. A. STIMSON read a paper with this title. (See page 449.)

Dr. JOHN A. WYETH said it seemed that the question resolved

itself into one of operation or non-interference. The arguments used in the very able paper which had been read recalled to his mind a meeting held nine years before, in that same room. At that meeting a paper had been read by a man recognized as a leader, which had attracted great attention at that period. He referred to a paper on the "Progress of Peritoneal Surgery," read before the members of the Academy on October 6, 1881, by Dr. J. Marion-Sims, who had then said: (1) "Wounds of the peritoneal cavity have a common course to run." (2) "They have a common termination, and that is death by septicæmia." (3) "This is the general law in death after ovariectomy." (4) "It is the general law in death after gunshot and other wounds of the abdominal cavity." (5) "The septicæmia is the result of absorption of bloody serum found in the peritoneal cavity after wounds or operations." (6) "Gunshot wounds of the pelvic cavity are recovered from because of natural drainage afforded by the track of the ball." (7) "Patients with gunshot wounds of the abdomen die of septicæmia because there is no natural drainage and the bloody serum falls into the peritoneal cavity and is there absorbed." (8) "The effect of bloody fluid upon the abdominal cavity is such as to demand abdominal incision and suturing of the divided tissues." The speaker then went on to say that there could be no fixed laws in the matter of interference in gunshot wounds of the abdomen. It was necessary to be guided by the condition of the patient and the situation of the wound, as well as by the size of the missile. Gunshot wounds of the intestine made by small bullets, owing to the contractility of the gut, were not so likely, other things being equal, to be followed by the escape of the intestinal contents and by peritonitis. If called to a case in which the patient had been wounded by a small-sized bullet, which had passed from before backward through the abdominal wall, above the level of the umbilicus, he would prefer to wait rather than interfere. An injury such as this from a small-sized bullet was not so apt to wound the gut. If the bullet was a large one and had passed through the abdominal wall above the navel, and the patient had passed out of the period of shock, had a good pulse, and was in a generally fair condition, the speaker said he would be inclined to open the abdomen to see if there were any of the viscera wounded. But below the umbilicus the abdomen was full of the small intestines, and it was scarcely possible for a bullet to pass through the abdominal wall from before backward in this region without wounding the small intestines more or less. In such cases he would open and explore. In any event, if the caliber of the bullet was No. 38 or No. 40, he would not hesitate to operate, but would not invade the abdomen if the bullet used had been a small one. It was of vital importance to operate at the proper time, and that was when the patient came out of the condition of shock. This might mean a few hours, or even ten or twelve hours. He mentioned a case in which a boy had been shot below the navel, the bullet passing obliquely through the abdominal cavity. This patient had remained in a condition of shock for five hours, at the end of which time he had come out of it, and in an hour had been in excellent condition, remaining so for five hours more. When the speaker was called to see him, six hours later—in fact, at the "eleventh hour"—peritonitis had set in and the boy was practically comatose. In such a case, he thought, the patient would have had a chance of recovery if interference had been commenced at the proper time. As to drainage, if the abdomen was opened and the patient was still weak and there existed considerable extravasation, it was better to leave the wound open.

The CHAIRMAN said it seemed that in this country special and ample opportunity was afforded for the study of gunshot wounds of the abdomen. He thought this was proved by statistics, unless such statements exaggerated the facts. While

walking through a London hospital Sir W. MacCormac had remarked to him that American surgeons had considerable advantage in this respect because in America pistols were as commonly carried and used as toothpicks. The speaker thought that something should perhaps be allowed for the temperament of those who used the weapons. As to the size of the missile, he thought experience indicated that a .22-caliber bullet would make the more fatal injury, and cited a case in which a bullet of that size had made five intestinal perforations. He also thought that greater stress should be laid upon the part of the intestines which suffered perforation than upon the size of the bullet. If the wounds were near the mesenteric attachment they were more likely to close spontaneously than if inflicted at points distant from such attachment. He was firmly of the opinion that some operation should always be done. The shock from chloroform or ether anæsthesia, he contended, added enormously to that of the initial shock from the injury, and therefore, where only moderate searsh was indicated, he advocated the use of cocaine. The absence of blood in the urine did not prove that the bladder or kidneys were uninjured. Lateral anastomosis was not indicated as a part of the primary operation after gunshot wounds of the intestine.

Dr. W. MEYER related a case in which the patient had shot himself in the abdomen. The bullet could be felt at the left of the spinal column. The patient had expectorated and vomited blood. Finding that the man grew gradually worse, it was decided to explore the abdomen. No perforation of the intestines was found and none of the stomach. When, however, the stomach was pulled forward, an abrasion of its posterior surface was discovered. The injury had been so superficial that it did not require sewing, and it was merely dusted with bismuth. The patient sank gradually and died, and, unfortunately, no post-mortem could be obtained. It was a point to be noted that the bullet had entered the abdominal cavity, and had found its way to the back of the stomach without perforating either it or the intestines. Still the man had both vomited and expectorated blood. As to interference in cases of gunshot wounds, he thought for the first twelve hours it was better to let patients alone; then, if the diagnosis of internal hæmorrhage was made, it would force the knife into the surgeon's hand.

Dr. CURTIS thought that the statistics of gunshot injuries, with the results of their treatment, were thoroughly unreliable. The high mortality rate might be the result of operations undertaken by inexperienced surgeons. The men who had been given the opportunity of operating in three or four cases were the men who were best able to handle them. He was glad that Dr. Stimson had emphasized the point that an operation upon patients in a moribund condition was unadvisable. No good could come to the patient, and great injury was thereby done to surgery.

Dr. T. H. MANLEY then narrated the history of a case of gunshot wound of the intestine in which he had operated and in which the patient had made a good recovery. The only difficulty which had presented itself in the case had been that of keeping the edges of the wound in coaptation, the thoracic and abdominal movements during respirations tending constantly to retard union.

NEW YORK SURGICAL SOCIETY.

Meeting of October 9, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

Abscess of the Brain.—Dr. THOMAS M. MARKOE read a paper with this title. (See page 509.)

Dr. L. A. STIMSON reported a case in corroboration of what

the author had said concerning the absence of fever and the relation between the formation of cerebral abscess and external injury. A case had come under his care of a man who had been struck on the head in a quarrel and received a scalp wound. He had been treated as an out-patient in one of the hospitals. After the lapse of some time, he had begun to suffer from pains in the head and had sought treatment at another hospital. When the man finally came under the speaker's observation he was entirely free from fever, but unconscious most of the time. On passing the patient one day when he happened to be conscious, the speaker noticed that there was paralysis of the left forearm. He trephined him the next day at the corresponding motor center, a little above the upper end of the scar which marked the site of the scalp wound alluded to. On removing the button of bone and introducing a hypodermatic needle, pus was found. An incision was made and about an ounce of pus let out. The man died, and the autopsy showed that the abscess occupied the convolution immediately behind the fissure of Rolando and at about the middle of the fissure. The paralysis has been limited to the extensor muscles of the forearm and hand. An examination of the seat of injury showed that there had been no fracture, except possibly of the external table, but that a limited carious process had followed, with perforation of the bone at one point. Between this lesion of the skull and the brain abscess there was, however, no direct continuity, normal brain tissue intervening of one third of an inch in thickness. The position of the abscess corresponded very satisfactorily to the data furnished by experimentalists.

Ligation of both External Carotids.—Dr. MARKOE showed a specimen from a case in which he had tied both external carotid arteries for cirroid aneurysm of the scalp. The vessels had contracted well as the immediate result of the operation, and he had been inclined to hope for a good result and had intended to tie more vessels. His patient had, however, passed from under his notice, and last summer had been in the hospital, where the president had seen him.

Dr. STIMSON said the patient spoken of by Dr. Markoe had come under his care, having suffered from severe hæmorrhages at a point on the scalp where an ulcer had formed. He dissected out and removed all the dilated vessels. The patient lost a good deal of blood at the operation, notwithstanding every precaution, including that of compressing the scalp by an elastic bandage. He was put to bed in fair condition. During the night he took enough liquid nourishment to have formed the equivalent of transfusion, and he did fairly well until about two o'clock in the morning, when he woke up very depressed, said he knew he was going to die, and asked to have a clergyman sent for. He died at 6 A. M., fourteen hours after the operation.

Dr. J. A. WYETH said he had noticed with surprise the rapidity with which the collateral circulation was established after ligation of these vessels. In Dr. Markoe's case the tumor had soon reasserted itself. He had recently treated a case of large retro-pharyngeal tumor. When he advised temporary removal of the upper jaw and total extirpation of the mass, the patient's father, a physician, declined to have so formidable an operation performed, on account of the sears that would remain, and its removal with the galvanic-cautery wire was therefore undertaken. The hæmorrhage was so profuse that plugging was resorted to, which controlled it. The plug was afterward removed by the house surgeon. A few hours later, while the lad was sleeping, alarming hæmorrhage occurred, and both external carotids were tied. On account of his exsanguinated condition, no attempt was made to remove the tumor at this operation. Five days afterward the speaker split the soft palate in the median line, sawed through the hard palate an inch on each

side of the attachment of the vomer, and removed the included portion of bone, to which the growth was adherent. This procedure gave a good view of the neoplasm, and he gradually scraped the remnants of it off with a sharp spoon. The bleeding was so profuse that he could not take time to apply the cautery to the points of attachment, but was forced to plug the vault of the pharynx.

Dr. F. E. LANGE said that, about four weeks before, he had operated in a case of sarcoma of the alveolar process of the upper jaw which had developed in a nævus that involved the whole cheek. The vascularity of the region had caused a rapid growth of the sarcoma. Thinking that ligation of both external carotid arteries would render the bleeding insignificant, he had done this, and had operated with the lead hanging. Still a good deal of blood was lost, the arterial hæmorrhage being quite profuse. He slit the upper lip, and bleeding occurred from both sides of the incision and from the arteries of the bone, and the ligation did not seem to have so much effect as he had expected. Good, free collateral circulation had been established. He did not think he could have been mistaken about the vessels which he tied.

Intestinal Strangulation.—Dr. L. S. PILCHER, of Brooklyn, presented a specimen taken from a case in which the patient had died after a laparotomy for the relief of intestinal strangulation, with the following history: A man, aged thirty-seven, was admitted into the Methodist Hospital on September 14th, with symptoms of intestinal obstruction. The abdomen was tympanitic, rigid, and tender; pulse, 140; temperature, 100.4° F. He was vomiting frequently a greenish fluid, without feculent odor; his attending physician stated positively that on the preceding day he had vomited feculent matter. Ten days previously he had had his last normal stool; four days before admission he had had a slight movement of the bowels, described as black and tarry in character. Seven days before admission he had a transitory attack of severe colicky pain in the abdomen; previous to this time he had supposed himself well, as he always had been. This attack did not prevent him from working as usual for the next three days, after which time the colic returned, accompanied with vomiting, and these symptoms persisted until his admission into the hospital. Cathartics, opiates, and enemata had been used vigorously before his admission. After his admission another enema was administered, without result. The stomach was then washed out, after which laparotomy was proceeded with. Exposure of the intestines revealed a general peritonitis already present, with great distension of the small intestine throughout its whole extent. The incision was lengthened sufficiently to permit of the ready turning out of the small intestine; the large intestine, quite empty, was then traced backward, beginning on the left side; at the hepatic flexure it was found to be imbedded in a mass of old organized inflammatory material, which bound it to the posterior wall of the cavity. This formed a band an inch or more in breadth, gluing all the adjacent structures together; on the proximal side of the band there was the livid, softened, distended ascending colon. It was evident that any attempt at breaking up the inflammatory adhesions would be attended with great risk of rupture of the intestine, a risk that was increased by the depth of the involved parts from the surface. The speaker accordingly proceeded at once to circumvent the obstruction by forming an anastomosis by bringing the lower portion of the ileum up to the ascending colon a few inches beyond the point of obstruction. This was accomplished by the use of Dr. Abbe's catgut rings. Great difficulty was experienced in returning the distended small intestines, and a puncture was necessary to empty them. This being closed, they were returned into the abdominal cavity.

The patient never rallied from the shock, but died within an hour after his return to bed. The autopsy showed a chronic ulcer of the ascending colon, which had not perforated the peritonæum, but had nevertheless occasioned the local peritoneal exudation that had caused the obstruction. It was found that, so far as the anastomosis was concerned, everything had been accomplished that had been attempted at the operative procedure.

Dr. ABBE thought that in these cases of acute obstruction the operation for effecting anastomosis had better be delayed until after the colostomy. The shock was too much for the patient to stand. After obtaining relief from the colostomy there was no danger after a fortnight in anastomosis.

Dr. ABBE presented a specimen illustrating a typical case of internal intestinal strangulation by a band. A lady of thirty-five was suddenly seized with vomiting and hypogastric pain. She was attended by a physician who endeavored to bring about purgation. Enemata, calomel, and other purgatives failed. Not even wind passed the bowel. Vomiting increased, and on the third day became stercoraceous. The abdomen became tympanitic, but showed no dull area to suggest the seat of obstruction. At the end of the fourth day, when she was first seen by Dr. Abbe, she had already for six hours shown characteristic apathy and exhaustion. Her temperature was normal, her pulse 100. Laparotomy was immediately resorted to under ether. The abdomen was found filled with distended and highly congested small intestines, among which was seen a small coil of pale and empty intestine. This and the distended gut both terminated in Douglas's *cul-de-sac*. The Falloppian tube on each side was turned upward and fixed by adhesion so as to form a tight pocket behind the uterus, in which was caught a strangulated knuckle of the ileum, with its adjacent coil for three inches. The attempt to remove it was futile, on account of its fixation, and, as the patient's strength began to flag, he was obliged to do an ileostomy of the lowest distended coil as rapidly as possible. The patient lived five hours and died of the shock of strangulation plus operation.

The gut was found gangrenous under the line of the strangulating band. Fæcal vomiting occurred twice after the operation.

NEW YORK NEUROLOGICAL SOCIETY.

Meeting of Tuesday, October 1, 1889.

The President, Dr. GEORGE W. JACOBY, in the Chair.

Lesion of the Pons Varolii.—Dr. A. A. BOYER presented a case of this affection with a history, of which the following is a brief synopsis: C. W. B., aged forty-five, syphilitic, in June, 1888, while at work, suddenly felt a sensation at the back of his head as if he had been shot. The shock was not severe enough to cause him to fall or lose consciousness. It was followed immediately by intense headache. Afterward, nausea, vomiting, and insomnia became prominent symptoms for six weeks, and he was treated for gastritis; there was then an interval of two weeks without these symptoms, after which they returned in greater severity. On August 14th his left thigh suddenly grew cold and numb; then the condition extended to his foot, and during the night spread up the trunk, left arm, and left face. In the morning there were anæsthesia and paralysis of the whole left side of the body. On examination eight months later, he had a hemiplegic gait, inco-ordination of the left arm, good equilibration, paresis of the left leg, paralysis of the left arm, drooping of left side of mouth, some atrophy from disuse on the left side, hemi-anæsthesia, and hemi-analgesia. The lesion would therefore seem to have been pretty definitely lo-

cated in the pons Varolii, to the right of the median line, above the line of Gubler, and involving the fillet, the reticular formation, and the pyramidal tract. The writer thought a lesion here would be high enough to produce paralysis of the facial muscles of the opposite side, and low enough to leave the ocular nerves unaffected. He believed the most reasonable theory as to the nature of the lesion was that of thrombosis as a result of obliterating endarteritis or hæmorrhage. It could not be a tumor.

Dr. W. R. BIRDSALL saw no necessity for assuming a lesion of the pons Varolii to explain the symptoms, which seemed to be wholly unilateral. He usually expected something particularly characteristic in pontic lesions, such as alternating paralysis. He thought a capsular lesion would account for all the symptoms in this case, and the absence of other pontic features would strengthen that view.

Dr. M. A. STARR agreed with Dr. Birdsall as to the localization of the lesion. He thought the case one of ordinary hemiplegia with a lesion in the internal capsule. Unless there were certain cranial nerve lesions, alternating paralysis, or some other characteristic symptoms, there was no need to locate the disease in the pons.

Dr. BOYER said he had been led to locate the lesion in the pons, because there had been no loss of consciousness at the onset of the attack, although very decided and varied paralysis had been developed immediately. In his opinion this pointed strongly to a minute lesion, and nowhere above the pons would a small lesion be likely to produce such wide results. The inco-ordination now remaining after the disappearance of most of the motor symptoms indicated a lesion of the fillet or of the commissural fibers in its vicinity.

The Curability of Locomotor Ataxia.—Dr. L. C. GRAY then read a paper thus entitled (to be published).

Dr. C. L. DANA said that we had changed our conceptions as to the variations in clinical types and as to the pathological lesions of locomotor ataxia. Probably ninety per cent. of our cases were typical and answered to the classic descriptions of the disease. But there was a minority of cases which had a non-typical manifestation, types with optic atrophy, with latent spinal symptoms, with spastic symptoms, with peripheral lesions, etc., and the prognosis was different in these forms. For instance, the prognosis was not bad in the spastic variety, but exceedingly so where there was rapid emaciation of the lower extremities. He had recently examined his notes of cases, and the results of treatment in 56 cases (22 syphilitic) had been as follows: 10 very much improved (3 syphilitic); 6 improved (4 syphilitic); 14 stationary (3 syphilitic); 13 progressive (8 syphilitic), 2 fatal; 10 doubtful or unknown.

He believed locomotor ataxia to be a degenerative disorder, affecting nerve fibers primarily, not beginning at a single focus, but at several different places at various times. In order to cure the disease we should have to discover a drug that would stop this degenerative process. As to suspension, he had tried it in 22 cases, with 600 suspensions, since last April. Of these, 4 patients were very much improved, 6 improved, 6 unimproved, and 6 had discontinued the treatment. He thought there was no question as to very marked benefit being produced by suspension.

Dr. BIRDSALL, on hearing the title of Dr. Gray's paper, had been led to think that some new view of the hopefulness of cure was to be introduced by the author, but he coincided with the writer in the opinion he had expressed as to the incurability of the disease. Various physicians entertained different ideas as to what should be termed a cure of a disease. Some considered patients practically cured where the pathological process had been arrested under treatment, although many symptoms might remain. If this were true, possibly

some cases of locomotor ataxia might be called to a certain extent cured. In one of his cases ataxia had disappeared, and had not now returned in nine years, although the patient had of late suffered from various crises, gastric and laryngeal, and some cerebral symptoms, such as loss of consciousness. For five years the active symptoms had been referred to the trunk and upper extremities. It was a syphilitic case. He had had another case where the tendon reflex had returned after abolition for many months, and ataxia had also disappeared; but pains and numbness had subsequently become manifest in the upper extremities. He would not himself speak of any case as cured, but only as arrested in its progress. It was well that we were able to recognize the disease much earlier than formerly, and had better opportunities for early treatment. Our measures should be chiefly hygienic—the regulation of diet, avoiding of excesses, diminishing of labor, etc. He had tried suspension in a few cases, but with no favorable results. At the same time, he did not deem it wise to throw it altogether aside as yet. He had seen injurious effects from large doses of potassic iodide, and, in his opinion, tabetic patients were not so well able to tolerate this drug as some suffering from other disorders. We must modify our opinion somewhat of the varieties of tabes, since Déjerine and others had discovered peripheral nerve lesions in some cases of locomotor ataxia.

Dr. STARR said, with regard to the difficulty of diagnosis between peripheral and cerebral cases, that we must judge from the order of occurrence of symptoms as well as from the symptoms themselves. He referred to Déjerine's paper, where it was shown that peripheral cases were distinguishable by the rapidity of their development as contrasted with those of cerebral origin; alcoholic, lead, and arsenical disorders could scarcely be mistaken for actual locomotor ataxia, for a sharp line could be drawn between them; and, even in the cases of obscure cause, the course was much more rapid in neuritis. Some seven years before Dr. Austin Flint had read a paper on the self-limitation of phthisis. A similar description might apply to locomotor ataxia also. It was possible that the sclerosis of the cord might be a protective process, an effort of nature to arrest or provide against the effects of disease. A pathologist in New York had taught for two years that connective tissue was thrown out by nature as a defense. Thus locomotor ataxia might also be a self-limited disease like phthisis in many instances, although in the majority of cases it was not.

His own records showed some twenty-five cases seen in the last four years, seventeen of which were carefully detailed. In nine of the seventeen there had been periods of non-progression at times, while in eight there had been steady advance in spite of treatment; but, as similar treatment had been employed in all of these cases, the temporary arrest of the disease in some could not be ascribed to the therapeutics. He agreed with Dr. Dana that eye cases manifested atypical symptoms. In three of his cases with blindness there had been no progress subsequent to the failure of sight. He thought it worth while to try specific treatment in patients with a history of syphilis, but he had little faith in its efficacy, as in his experience—as in that of continental observers—it afforded less benefit in locomotor ataxia than in other syphilitic nervous affections. He usually employed small doses of arsenic and biniodide of mercury, which was the English treatment. In thirteen cases treated by suspension at the Vanderbilt Clinic, tabulated by Dr. Peterson, there were seven cases of locomotor ataxia. There had been distinct improvement in two cases only, and none at all in four, while in two the results had been bad, the suspension producing syncope, nausea, and vomiting, severe pain, and enuresis at different times. It might be stated, therefore, that a small proportion only of cases had been improved by suspension.

Dr. B. SACHS had observed in two cases the disappearance of the cardinal symptoms of locomotor ataxia without treatment. The first was as follows: B. L., a merchant, aged forty-eight, seen on August 18, 1886, complained of retching, with dizziness, a numbness of the left arm, and unsteadiness in walking. Both knee-jerks were absent, and could not be elicited with Jendrassik's method. There was slight swaying with the eyes closed, and the patient complained of a feeling as though his drawers were too tight around the waist. The speaker made the diagnosis of *tabes incipiens*, but with some hesitation, for the general condition of the patient was very good. After two months a slight knee-jerk returned on the right side, and a few months later the left was recovered. Three years had now elapsed since the observation of these symptoms, and the man was in perfect health at the present day. He believed it to have been a functional depression of the cord due to overwork. A second case had shown all the symptoms of *tabes*, except that the knee-jerk was absent on one side only. The patient had the Argyll-Robertson pupil and the Romberg and girdle symptoms. He had seen him four months before, and all of the symptoms had diminished.

A simple syphilitic spinal meningitis might simulate a posterior sclerosis, and this should be borne in mind when cases improved under treatment. He mentioned another case, diagnosed as locomotor ataxia by Erb twelve years before, the patient now living in Utah, which had been stationary for five years. So far as actual curability was concerned, he could not speak of that unless a progressive form had been arrested. He would classify cases into optic and spinal types. As to suspension, he had found it unsatisfactory, and had been unfavorably impressed by it. It had seemed to him better in spastic cases, such as myelitis.

Dr. E. WAITZFELDER had been using suspension in a case of spastic paraplegia, and it had made the patient worse, as well as several others with myelitis, but he had noted considerable improvement in gait in several patients with locomotor ataxia who had been subjected to this method of treatment.

Dr. W. M. LESZYNSKY had observed a few favorable results in the employment of suspension in spinal cases. He had also used it in a case of paralysis agitans three or four times with good effect.

Dr. GRAY said that Fournier's and Rumpf's syphilitic patients had shown great improvement under treatment, but this had not been his own experience. He believed there were certain cases where there would be great difficulty in distinguishing peripheral from central symptoms. As to the matter of self-limitation mentioned by Dr. Starr, he saw no analogy between *tabes* and phthisis. In treatment he preferred to follow French authors and employ inunction in syphilitic cases rather than potassic iodide, for the results were much better.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN SURGERY.

Meeting of October 14, 1889.

Dr. ROBERT ABBE in the Chair.

Severed Tendons.—Dr. B. F. CURTIS presented a patient who had received a transverse wound of the left forearm, severing all the flexor tendons. The accident had been caused by glass. The ends of the tendons had been united by sutures, with extension of the hand. Part of one of the tendons had sloughed, leaving a deep depression where the wound had healed by granulation. The patient had recovered considerable power. The speaker thought that further improvement might be effected

by an operation which would free the tendons from the cicatricial tissue which surrounded them.

The CHAIRMAN remarked that the question of further repair was one of interest. He did not see why the tendons should not be dissected out and grow up in new cellular tissue. They might then be sutured individually, and, if a new bed were formed, would then have an opportunity of surrounding themselves with loose cellular tissue.

Dr. R. H. SAYBE spoke of a case in which there had been a cross cut of the forearm through the annular ligament, followed by union of the tendons in one mass. An operation was performed in which the tendons were dissected out, resulting in restoration of separate movements, with great increase in the power of extension.

Contraction of the Annular Ligament of the Wrist.—

The CHAIRMAN presented a patient upon whom he had operated for the relief of contraction of the annular ligament of the wrist joint due to extensive tuberculous deposits in the forearm. He had made a free incision through the ligament, on the limb, and on the flexor tendon of the first finger. He had also removed about two hundred rice seed bodies which had been found connected with the tuberculous deposit. His patient had now excellent play in the fingers, and would make a satisfactory recovery. These cases were now recognized as tubercular in their origin, and afforded an excellent field for clean antiseptic work.

Fibrous Contraction of the Fingers.—Dr. CURTIS reported a case occurring in a girl whose right finger had been bound down upon the palm of the hand as the result of cellulitis. After raising a flap and uncovering the tendon, he found that it and its sheath had become one mass of fibrous tissue. He dissected out the tendon from this fibrous mass until he succeeded in getting a freely movable finger; at least his patient had got perfect palmar flexion.

The CHAIRMAN remarked that in the case he had reported no passive motion had been made, but active motion had been allowed at the end of six days.

Diseases of the Bones.—Dr. A. M. PHELPS presented a child, three years and a half old, upon whose foot he had operated for disease of the tarsal bones. He had scraped out each of the bones except the cuneiform and os calcis, which last he had removed. In so doing he had left nothing but the periosteum. The Esmarch bandage was then removed. No ligatures were applied, the blood being allowed to find its way freely into the excavated portions. The wound was then closed and dressed. He had been told that at the end of three weeks it had healed by primary union throughout, and at the end of five weeks there had been reproduction of solid bone, and the child could walk well. No pus formation had followed the operation, and after a few days a thin dressing of plaster of Paris had been applied and the child allowed to walk about. Another case was that of an Italian girl who, since she was five years of age, had suffered from osteomyelitis involving the tibia and fibula, the leg being flexed at a right angle. The question as to amputation or excision having been discussed, it was decided to excise the knee joint. The operation showed the lower end of the femur also to be involved in an old tuberculous condition. The diseased portions were removed, as much of the periosteum being left as possible, and the ends of the tibia and femur were approximated. Bony union had resulted, though, of course, there had been want of general development in the bone after such extensive disease, the girl having been bedridden for five years.

Knots, Ligatures, and Sutures.—Dr. B. F. CURTIS read a paper on this subject. He gave an elaborate and minute description of the technique of tying, ligaturing, and suturing according to the best and most recognized methods.

Several forms of knots were used in surgery. The surgeon's knot and the square or reef knot were tied in pretty much the same way, the only difference being that in the surgeon's knot there was an extra twist on the first half, which prevented it from slipping while the second half was being tied. When the tension was extreme, and a slippery catgut was used, it was well to tie a third turn after the square knot was completed. This additional turn should always be employed in tying the surgeon's knot in catgut, for the double turn of the first twist did not correspond to the second turn made in the ordinary way. The greatest tension should always be exerted upon the first turn, for that was tied around tissues which were more or less elastic and yielding, and the encircling loop of thread helped to take up the extra strain, so that the material might safely be put to its fullest stretch. This was not the case with the second turn, which had no such safeguard, and might easily break if too much of a pull was put upon it. The "clove-hitch" knot was sometimes useful in surgical work. As it did not slip easily, it was employed in securing the catheter in the bladder, and in reducing dislocations and deformities. It was surprising to know that the now almost obsolete "granny knot" was still used by some surgeons. In ligating thick pedicles, where the tissues were very elastic, and a slippery catgut was used, a surgeon's knot might be employed, but, as a rule, it should not be used for ligatures. In tying a ligature, the points of the thumbs or fingers should be carried down the thread close to the knot, so as to make a direct pull upon the knot itself, thus avoiding displacement of the artery-forceps or tissues, or the dragging off of the inclosed mass. When there was difficulty in securing a bleeding point on account of the friable nature of the tissues, or because the latter were too dense to be pinched up by the forceps or ligature, the hæmorrhage could be arrested by passing a suture deeply through the tissues beneath the bleeding vessel and tying the whole mass so as to include it. It was in this way that Horsley controlled hæmorrhage in his extensive operations upon the delicate brain tissue. When an artery was to be tied in its continuity, catgut was now almost exclusively used. It was not necessary to draw the thread tight enough to divide the internal coat of the artery, as used to be the rule, for the lumen of the vessel would be obliterated by simple adhesion of the internal surfaces. If a permanent obliteration of the vessel was desired, it would be better to apply two ligatures, and divide the artery between them. If a vein had received a small wound, and the vessel could be picked up by forceps without entirely occluding its lumen, a ligature might be thrown around the forceps and the permeability of the vein retained. In treating the pedicles of tumors, especially those which were to be dropped into the abdominal cavity, it was not safe to depend upon a ligature simply tied around the pedicle or mass. It was necessary to transfix the pedicle with the ligature before tying, and to tie it in two or more places. It was in these cases that the interlacing ligature was of valuable service. Lawson Tait had introduced a very good method of applying ligatures to pedicles, which combined all the advantages of the various methods, and required less time to apply it; this was the "Staffordshire knot." The best material for ligatures for pedicles of any size was silk: catgut was too readily absorbed and too bulky when sufficiently thick to be strong. The silk became encapsulated and gave no trouble. Various forms of suture were used in the accurate coaptation of parts after operations or wounds. The interrupted suture was to be preferred where there was much tension, for if it yielded in any place the integrity of the other stitches would not be impaired. If the continuous suture was used in such a case and one of the stitches should break or cut out, the whole line would become slack. In exposed parts of the body where

close and smooth apposition was required, the interrupted suture was the best. The continuous suture was to be employed for almost all other wounds than those just noted, on account of the ease and rapidity with which it could be applied. A modification of the continuous suture was found in the chain-stitch or "glover's suture." Another form was the "quilt suture," designed to bring broad surfaces into apposition. This suture had a tendency to cause eversion of the edges of the wound, making it an excellent suture in operations on the skin, which had a natural tendency to inversion. The "cobbler's stitch" was another form of the continuous suture, and was very useful for covering in broad, oozing surfaces in pedicles where it was impossible to ligate *en masse*. In some cases where there was great tension of the skin, or where there was a tendency of the deeper parts to fall away from each other and leave a cavity, the lead-plate suture might be used; it acted as a support to the part. The hare-lip suture was useful in very much the same conditions as the preceding suture. The buried suture could be used to prevent the formation of cavities after wounds, and was frequently used in plastic operations, or after excision of anal fistulæ. In cases where a strong supporting suture was required the wire suture was generally used. In suturing the tendons and nerves, much ingenious surgery was necessary to overcome mechanical difficulties. One of the obstacles to the suturing of nerves was the fact that degenerative changes were set up at once in the divided ends, so that, even with immediate restoration of physical continuity, functional restoration was delayed until the nervous tissue could be regenerated. The only available forms of suture for the intestine and stomach were those which brought the peritoneal surfaces together and prevented leakage of the contents. This requirement was most simply fulfilled by the Lembert stitch, whether applied as an interrupted or as a continuous suture. One of the greatest difficulties in circular suture of the intestine was the treatment of the mesenteric attachment at the wound. It required great care to cover the raw surfaces here with the ordinary Lembert suture, even when the two peritoneal layers of the mesentery had been fastened together by a stitch at the wound. A passage-way of non-serous surfaces was very apt to be left in the wound, communicating at one end with the interior of the bowel and at the other with the fatty cellular interspace between the two layers of the mesentery. This formed an easy route for infection, and was the point where the suture most frequently gave way. The old idea of protecting the line of sutures with a strip of the omentum stitched around outside had lately been revived by Dr. Senn. The best needles for use in intestinal work were the fine needles with long eyes, such as were used by ladies for working in crewels. Fine silk was the best material for the suture. More complicated methods of suture were in favor with some surgeons, such as those of Czerny, Wölfler, and others. A great advance in intestinal surgery had been made by Senn's proposition to employ perforated plates of decalcified bone when it was desired to make an anastomotic connection between two adjacent loops of bowel, instead of the tedious operation of uniting the edges of the openings in the two loops to each other by sutures. These plates had a large opening in the center to allow the contents of the intestine to flow through. This method insured a continuous patent intestinal canal. Dr. Abbe had suggested oval catgut rings. These were coils of catgut of about the thickness of a lead-pencil, and flattened by pressure between two plates of glass. Brokaw, of St. Louis, had experimented successfully on dogs with rings made of short pieces of rubber tubing threaded on catgut strands, to which the silk threads were attached. Perhaps the most important development in the use

of the rings was their adaptability to lateral anastomosis in the place of end-to-end suture of the intestine. A considerable number of cases were on record in which the rings had been used successfully for entero-enterostomy and gastro-enterostomy.

Greig Smith had introduced a very ingenious suture for securing the stomach to the abdominal wall for gastrostomy. It was also available for securing any cyst to the abdominal wall for drainage, and in the operation of lumbar colotomy. It would be a hard matter to say which was the best method of closing the abdominal wound in laparotomy. Everybody was agreed, however, upon the necessity of bringing the peritoneal surfaces into contact. Some surgeons used only a single row of sutures, which passed through all the layers of the abdominal wall, while others applied several series, uniting each layer independently. In suturing the bladder and in the treatment of the uterine wound after Cæsarean section, the Lembert stitch was to be preferred.

The author of the paper contrived to make his subject, which was of necessity one of detail and technicalities difficult to describe and to follow, thoroughly interesting. Many of his points were admirably elucidated by very cleverly executed diagrams.

The CHAIRMAN said it was remarkable that while the field of operative surgery was becoming enormously enlarged, the practical details of its performance were being cut down to smaller dimensions. The old authors, if writing on the subject of Dr. Curtis's paper, would have included very much more material and very many more styles of work. Now only the essentials had been given, and yet even here some things might with reason have been left out; for instance, the hare-lip pin seemed to him a device of the past. He advocated the use of sutures to secure secondary union. The sutures might be introduced at a primary operation, and then, when so desired, the wound could be kept open for forty-eight hours by stuffing. This could then be removed, and the sutures tied, when it would be found that union was secured as effectively as by primary coaptation. In the matter of suturing tendons he would like to allude to a form of injury of the finger known as Ségond's fracture. The end phalanx of the finger dropped, and there was no power of raising it. The injury was very easily incurred. A lady in slipping off a stocking had caused the accident; another had caught the end of her finger in a fold of her dress. A patient of the speaker's had had his finger struck by a base-ball, and the result had been produced, and another had stubbed his finger. In the case last mentioned he had operated by making a free incision over the parts, dissecting till he had reached the extremely attenuated attachment which had drawn back the phalanx. He had then divided the tendon and, after removing sufficient to reduce it to the required length, sutured the ends together with silk, making use of the second method described by Dr. Curtis. He had left the suture buried and it remained so at the present time. The patient could use his finger and had good motion in the joint.

Dr. SAYRE said that he would like to call attention to a use of the buried suture which had not been mentioned. By continuing the shoemaker's stitch and passing up to the edge of the skin the operator could avoid the needle punctures. This made a very beautiful cicatrix, which in plastic surgery was very desirable.

Dr. R. H. M. DAWBARN spoke in terms of approval of Dr. Abbe's catgut rings. He had used them in two cases on the living subject and had been struck with the ease and rapidity with which the anastomosis could be effected.

Dr. V. P. GIBNEY said that he had had some experience in the deformity alluded to by the chairman, but had never had an opportunity of operating for its relief. Some three or four years ago, however, two or three patients had presented themselves on

various occasions at his clinic with a condition of the phalanx such as had been described. He had resorted to various expedients in the way of splints, but only to find them perfectly useless. Finally he had superextended the fingers and put on a very light plaster-of-Paris bandage, which he had kept on for three or four weeks, and in one instance for as long as two months. These patients had recovered perfectly. In a case at present under his notice the patient had fitted a little splint into the finger of a glove, but was always removing it. Now there was a distinct area of inflammation and the finger looked gouty. Using the finger increased this inflammatory appearance.

The CHAIRMAN said that he had noticed this inflammatory zone of which Dr. Gibney had spoken. He thought the plan of superextension and immobilization with plaster was an excellent one, and he would certainly prefer it to that of suturing and leaving the silk *in situ*.

A Case of Nephro-lithotomy followed by Nephrectomy.—Dr. ANDREW J. McCOSH read a paper with this title. He said operations for the extraction of renal calculi were not of very common occurrence. On that account it was important that all cases of nephro-lithotomy should be reported in order that a definite conclusion might be reached as to the surgical position this operation was to occupy. Cases in which the result had not been satisfactory were even more important than those in which a cure had been accomplished.

W. H., aged forty-four, a canvasser, was admitted into the Presbyterian Hospital, July 15, 1889. Some five years previously he had begun to feel pain in his back, especially on the right side. This had continued, with intermissions, ever since. Lately it had increased. At the time of admission to the hospital he passed, in his urine, a large amount of blood. This continued for a few days, after which the urine appeared perfectly clear and natural. At times he suffered from frequent and painful micturition. He had tried all sorts of treatment without benefit. Exertion so aggravated his pain that he had been unable to attend to his business. He had been obliged to remain in bed on this account, his strength gradually failing. Within the preceding eighteen months he had lost twenty pounds in weight. When admitted, he was a large, athletic, robust-looking man with well-developed muscles. He was anæmic, however, and had a careworn expression. He complained of pain in his right loin, at times excessively severe, and never altogether absent. He described it as of a gnawing character. His right testicle had always been more or less retracted. The urine contained albumin and a few pus-corpuscles. No red blood-corpuscles or crystals of any kind were present. Daily examination of the urine for six days gave the same result. The amount of albumin was about a half of one per cent. The pus-corpuscles were sometimes entirely absent, and were never numerous. The diagnosis of renal calculus was made. As the patient had for years been subjected to various kinds of treatment without benefit, an exploration of the kidney was proposed. On July 20th the patient was anæsthetized with chloroform. A vertical incision at the outer edge of the right erector spinæ muscle was made from the last rib to the crest of the ilium. The lumbar muscles were found to be enormously developed, and the circumrenal fat could not be reached until an unusually deep wound had been made. Tearing through this, a small portion of the kidney could be seen, but not until strong pressure by the hand of an assistant had been made through the abdominal wall could the kidney be brought well into view. To sight and touch it appeared to be healthy. The finger, passed around the kidney, soon discovered a hard body of about the size of a walnut in its pelvis. A needle thrust against it verified the diagnosis of renal calculus. The kidney was situated so deep and high under the ribs that a transverse

incision, at right angles to the vertical one, was made for two or three inches outward. This gave more room, but the pelvis of the kidney could not be brought into view. It was decided to extract the stone through the kidney structure proper. Accordingly, a cut about an inch and a half long was made through the external border. By cutting and tearing, this incision was extended down to the pelvis, whence the stone was easily extracted with a long forceps. The bleeding from the cut kidney was moderate and easily controlled by pressure. Not a drop of pus escaped from the kidney, which appeared but little diseased. The stone weighed one hundred and twenty-two grains and was covered by small, rough crystalline projections, apparently composed of oxalate of calcium. Bleeding having ceased, two cat-gut sutures were placed in the capsule, which drew the walls of the incision into apposition. The external wound was partly closed and packed with boro-salicylic gauze. At the end of the operation the patient was in good condition, and recovered rapidly from the anæsthetic. For the first few days the urine contained a considerable amount of blood, but at the end of a week this had disappeared. For a few days there was a purulent discharge from the urethra with pain on micturition. The original dressing was not changed until the fourth day. The discharge had not soaked through the dressings, and there had been no indication for interference. Twenty-four hours after the operation the patient said that he was more comfortable than he had been for years. The first week the temperature had varied between 99° and 100.5° F. On the tenth day there was severe pain in the wound with elevation of temperature. It was feared that the exit for pus was insufficient. The house surgeon then passed his finger deeply into the wound to break open any pockets which might have formed. This was followed by a discharge of urine from the wound, which lasted but a few hours. The result had been a decided improvement in the patient's condition. At the end of three weeks he was out of bed and feeling fairly well. A granulating sinus still existed in his loin, but, except on the one occasion, there had been no sign of urine in the wound. Improvement continued, and on the thirtieth day the patient was discharged apparently cured. On the afternoon of the same day, however, he experienced severe pain in his kidney, accompanied by vesical tenesmus and the passage of blood *per urethram*. His temperature rose to 102° F., and his pulse to 110. The next day the temperature remained elevated, the pain continued, and pus and blood were passed in the urine. The sinus in his loin was explored, and found to be an apparently healthy granulating channel leading toward the kidney without pouches or lateral branches. On the third day the patient's condition was much worse, and an accumulation in the pelvis of the kidney was suspected. An exploration by the finger was followed by a sharp gush of urine and blood. An effort was made to stop the hæmorrhage by pressure of the finger, but it was found necessary to pack the wound with iodoform gauze to arrest it permanently. No improvement in the patient's condition followed; the temperature rose to 104° and the pulse to 120. Considerable blood was passed in the urine. At the end of twenty four hours the dressing was removed, and this was followed by profuse bleeding, rendering repacking necessary. Although bleeding from the external wound had been prevented by the tampon, considerable blood appeared in the urine, which continued till the next day. The temperature remained the same, and the pain and restlessness increased. It was estimated that at least thirty-two ounces of blood had been lost during the three days, and it was evident that more energetic action would have to be adopted. On the 24th of August, thirty-five days after the first operation, chloroform was administered with the intention of freely exposing the kidney and, if necessary, of re-

moving it. The condition of the patient was decidedly unfavorable. Without disturbing the gauze in the sinus, incisions through the old cicatrices were rapidly carried down until the kidney was exposed. As soon as the gauze had been removed, free hæmorrhage took place, but was controlled by pressure. It was expected, from the experience of the former operation, that removal of the kidney would be difficult on account of its depth, its high position, and the large development of the lumbar muscles. The space between the ribs and the iliac crest being short, the last rib was excised. This gave sufficient space to allow the kidney to be drawn well into the wound. The pedicle was secured by a ligature *en masse*, the kidney was cut away, the vessels and ureter were tied separately, and the wound was irrigated with boro-salicylic solution and packed with gauze. Toward the end of the operation the patient required rectal and hypodermic stimulation. The extirpated kidney was found unusually large. On its external border, where the original incision had been made, there was found an oval opening leading down to its pelvis. The kidney-substance forming the edges of this opening was softened and seemed to be breaking down or sloughing. The whole organ was congested, and a stone of the size of a pea had been found in one of the calices. The patient rallied slowly, and by the next day had decidedly improved. The urine, drawn a few hours after the operation, contained considerable blood. From this time onward there was complete suppression of urine. Toward afternoon, twenty-four hours after the operation, persistent vomiting began; the temperature rose to 105°. Vomiting continued and the pulse grew weaker, and the patient, from extreme restlessness, passed into a state of semi-coma, and died at 11 p. m., thirty-two hours after the operation. Death was due principally to uræmic poisoning, and partly to exhaustion from loss of blood. The remaining kidney, for there had been one, had failed to perform its function.

This case had been a very disappointing one. At the end of a month the patient had been apparently cured, when suddenly symptoms of pyelitis, or pyelo-nephritis, developed. These rapidly reached a point where a fatal termination was imminent. In an attempt to ward this off the kidney was reopened. The result was persistent hæmorrhage without amelioration of the other symptoms. The bleeding took place from the parenchyma of the kidney, and its source appeared to have been the numerous blood-vessels which had been torn. The writer had never seen or heard of a case where moderate pressure for a few moments would not entirely control bleeding from lacerated kidney tissue. The question as to whether the hæmorrhage had been due to the sloughing of the edge of the wound or to failure in contraction of the blood-vessels on account of the cicatricial tissue, he was unable to answer. He thought that, after unfavorable operations, it was always instructive to review the technique and consider how it might with advantage have been modified. In this case he could not see how the unfortunate complication could have been foreseen or avoided. He said that the secondary disease might possibly have been prevented if the stone had been extracted through an incision in the pelvis of the kidney instead of through the substance proper, although it had been considered preferable to incise the kidney itself. He thought it would have been wiser to extirpate the kidney twenty-four or thirty-six hours earlier, thereby saving the loss of blood. So far as the writer knew, no such complication had ever before arisen. This was his third case of nephro-lithotomy. In two cases recovery had been prompt and permanent. In one the stone was extracted by an incision in the pelvis; in the other, through the body of the kidney. In the case in which the pelvis was opened the escape of urine persisted for twelve days; in the other case it ceased in twenty-four hours.

New Inventions, etc.

NASAL INSTRUMENTS.

By J. W. GLEITSMANN, M. D.

1. *A Nasal Bone Forceps.*—Although the writer feels some aversion to increasing the already large number of existing designs of nasal forceps, the instrument here described has, after repeated trials, proved so satisfactory that he deems it advisable to publish a description of it. The forceps has the usual angle of nasal instruments. The branches, which are slender but very strong, cross each other when the instrument is closed, thereby occupying very little space. They can be introduced through the narrowest nasal speculum to any desirable depth, and, on account of their smallness, do not obscure the field of vision. The chief point distinguishing it from other devices is the location of the joint near the distal end, by which arrangement great power can be exerted when the blades seize the part to be removed (Fig. 1).

The design had its origin in the desire to extract pieces of septal cartilage, or still oftener bones which had been operated upon either with the nasal trephine or the saw. Especially in using the saw the

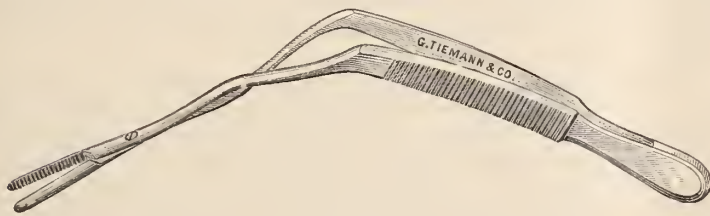


FIG. 1.

severed bone was often found to be difficult of removal on account of being firmly imbedded in the stenosed canal or still adherent to the septum by a shred of undivided mucous membrane. The failure to extract the bone with a slender forceps and the difficulty of overlooking the field when using a stronger straight forceps led to the construction of the instrument.

Although intended only for removal of bone which had been operated upon, quite recently a foreign body, a shoe-button, which yielded to no other instrument, was extracted from the nostril by the aid of the forceps, having blades with three prongs, as shown by the second drawing (Fig. 2).



FIG. 2.

2. *A New Nasal Dilator.*—The dilator here described is made from the wood of the *Nyssa aquatica*, or tupelo-tree of the Southern States, which was first introduced into medical practice by Dr. G. E. Sussdorf. In the May number of the "Richmond and Louisville Journal," 1879, he recommended its use for tents to dilate the os uteri, and subsequently Mundé corroborated his statements. The root is subjected to heavy hydraulic pressure, and, when exposed to moisture, offers the following advantages: It expands very rapidly and equably, and is therefore preferable to laminaria, which swells irregularly, and consequently exerts unequal pressure. Its surface is smooth and does not lacerate the tissue when introduced into a narrow opening. After removal the tissues do not appear dry, but even more moist and pliable than before. Tupelo has also to a certain degree antiseptic properties; it does not favor decomposition, and no smell is perceptible after it has been extracted. Its chief advantage for our purpose is the softness of its texture, which enables us to cut it into any desirable shape with an ordinary knife (Fig. 3).

The writer was for some time in search of an agent to produce sufficient dilatation of naturally narrow nostrils, which did not require active interference—viz., which did not present a turbinated hypertrophy or a septal exostosis. Further, cases often presented

themselves for treatment in which after such operations sufficient space could not be gained for satisfactory nasal drainage, or in

Fig 1.



Fig 2.



FIG. 3.

which the danger of subsequent formation of adhesions was imminent. The soft rubber tubes and similar devices did not fulfill the requirements, and a more thorough and efficient method seemed highly desirable. Tupelo, to which the writer's attention for this purpose was first drawn by Messrs. Tiemann & Co., has proved to him so eminently satisfactory that he considers it his duty to lay the results of his experience before the profession. He has employed it now in about a dozen cases, and in no instance has it failed to meet his expectations. A single case may serve as an illustration: A patient with naturally very narrow nostrils and bilateral exostoses on the lower part of the septum suffered from almost complete obstruction of the nares, the lateral walls and the septum being in immediate contact with each other without the presence of true turbinated hypertrophy. On one side the septal exostosis had been removed by a physician, but the operation had not given the desired relief. The introduction of the tupelo dilator four times opened the nostril enough for all practical purposes, and no contact of the parts took place afterward. The other nostril was treated in precisely the same manner, tupelo being introduced after the wound from the nasal trephine had healed sufficiently, and the result was equally satisfactory. The writer feels confident that he has materially shortened the time of treatment of suitable cases since applying the tupelo dilators, and he would feel loath to part with them.

The manner of application is very simple. After the nostril is thoroughly cleansed with a disinfectant solution and anesthetized with cocaine, a piece of tupelo is cut to correspond to the required size, seized with an ordinary forceps, and introduced to the desired depth. After remaining in the nose for fifteen to twenty minutes the expansion is accomplished and the piece, generally swollen to quadruple its size, removed. After another cleansing, the patient can be sent home, or, as it has been my custom lately, a piece of tinfoil, which also can easily be shaped according to the requirements of the case, is inserted, to prevent contact of the parts, if there should be such an indication. The tinfoil may remain with impunity till the patient pays his next visit. The smaller piece of tupelo in the drawing represents the size generally employed. It was put into water for ten minutes, and the second figure shows the appearance of the piece after that time. This is the usual expansion obtained in the nostril. It has been found most convenient to have the tupelo made up in pieces of six inches by an inch and a half

Miscellany.

The Medical and Chirurgical Faculty of Maryland will hold a semi-annual meeting in Hagerstown, on Tuesday and Wednesday, the 12th and 13th inst., under the presidency of Dr. A. Friedenwald, of Baltimore. The programme includes the following titles: "Persistent Headaches and how to cure them," by Dr. J. J. Chisolm; "Practical

Remarks on Hernia," by Dr. Robert W. Johnson; "Report of a Case of Double Popliteal Aneurysm cured by Ligature," by Dr. J. Edwin Michael; "The Use of the Galvano-cautery in Skin Diseases," by Dr. George H. Rohé; "The Early Detection of Pulmonary Consumption," by Dr. William B. Canfield; "Typhoid Fever," by Dr. Joseph T. Smith; "Remarks on some Recent Cases of Abdominal Tumor," by Dr. Randolph Winslow; "The Origin and Treatment of Pus Accumulations in the Female Pelvis," by Dr. T. A. Ashby; "Remarks on the Principal Modes of treating Hæmorrhoids," by Dr. S. T. Earle; "Rhachitis considered in Regard to some of its Special Symptoms," by Dr. William Lee; "Post-nasal Obstruction in Children," by Dr. J. N. Mackenzie; and "A Review of Hypnotism," by Dr. George J. Preston.

The New York Academy of Medicine.—At the next meeting of the Section in Surgery, on Monday evening, the 11th inst., Dr. F. R. Dennis will read a paper on "Fractures of the Base of the Skull," and Dr. F. Kammerer will report a case of "Operation on a Sarcoma of the Dura Mater and Ligature of the Longitudinal Sinus."

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 14th inst., Dr. M. Putnam Jacobi will make "Remarks on a Case of Empyema" (the discussion to be opened by Dr. F. Delafield); Dr. L. E. Holt will read a paper on "The Anatomical Characters and Nomenclature of the Diarrhœal Diseases of Infancy"; and Dr. H. D. Chapin will read a paper entitled "Observations relating to the Summer Diarrhœa of Infants" (the discussion to be opened by Dr. W. P. Northrup).

At the next meeting of the Section in Orthopædic Surgery, on Friday evening, the 15th inst., Dr. Henry Ling Taylor will read a paper on "The Treatment of Pes Equino-varus by Continuous Leverage."

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending November 1st:

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—								
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Oct. 26.	1,586,567	612					14	5	16	12	11
Philadelphia, Pa.	Oct. 19.	1,040,245	327					9	5	13	3	3
Baltimore, Md.	Oct. 26.	500,343	155					3	2	7	1	1
Boston, Mass.	Oct. 26.	420,000	180					6	1	11	2	2
Cincinnati, Ohio	Oct. 26.	325,000	108					5	1	6	2	2
New Orleans, La.	Oct. 19.	254,000	107					4	1	5	2	2
Washington, D. C.	Oct. 19.	250,000	100					2	2	4	2	2
Detroit, Mich.	Oct. 19.	250,000	68					2	2	2	2	2
Louisville, Ky.	Oct. 19.	227,000	45					2	2	2	2	2
Minneapolis, Minn.	Oct. 26.	200,000	45					2	1	3	1	1
Kansas City, Mo.	Oct. 26.	180,000	44					2	1	1	1	1
Providence, R. I.	Oct. 26.	127,000	46					2	1	1	1	1
Indianapolis, Ind.	Oct. 25.	127,000	28					2	2	1	1	1
Toledo, Ohio	Oct. 25.	89,000	32					1	1	7	1	1
Fall River, Mass.	Oct. 26.	69,000	15					1	1	1	1	1
Nashville, Tenn.	Oct. 26.	65,153	23					1	1	1	1	1
Charleston, S. C.	Oct. 26.	60,145	44					1	1	1	1	1
Lynn, Mass.	Oct. 26.	59,000	19					1	1	1	1	1
Portland, Me.	Oct. 26.	42,000	17					1	1	1	1	1
Manchester, N. H.	Oct. 19.	42,000	19					1	1	2	1	1
Galveston, Texas	Oct. 11.	40,000	13					1	1	1	1	1
Council Bluffs, Iowa.	Oct. 14.	35,000	7					1	1	1	1	1
Council Bluffs, Iowa.	Oct. 21.	35,000	7					1	1	1	1	1
Binghamton, N. Y.	Oct. 26.	30,000	14					1	1	1	1	1
Haverhill, Mass.	Oct. 26.	25,000	5					1	1	1	1	1
Newton, Mass.	Oct. 19.	21,553	5					1	1	2	1	1
Newton, Mass.	Oct. 26.	21,553	3					1	1	1	1	1
Rock Island, Ill.	Oct. 20.	16,000	7					1	1	4	1	1

Resolutions offered by the Board of Obstetric Surgeons of the Maternity Hospital on the Death of Dr. Isaac E. Taylor.—*Resolved*, That in the death of their late president, Dr. Isaac E. Taylor, the members of this board have met with an irreparable loss—the loss not only of a faithful and efficient colleague, but of a warm personal friend.

Resolved, That in his beautiful and serene old age they recognized the noblest type of the good physician, who retired from the active practice of his profession in the fullness of his fame and with the universal love and respect of his associates.

Resolved, That they extend to the family of the deceased their heart-

felt sympathy and that they will unite with them in cherishing his memory.

Resolved, That copies of these resolutions be sent to the family and to the medical journals.

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|----------------------------------------|----------------------------|
| FORDYCE BARKER, M. D., | HENRY J. GARRIGUES, M. D., |
| WALTER R. GILLETTE, M. D., | ROBERT A. MURRAY, M. D., |
| WILLIAM T. LUSK, M. D., | EGBERT H. GRANDIN, M. D., |
| MONTROSE A. PALLEN, M. D., | HENRY C. COE, M. D., |
| <i>Consulting Surgeons.</i> | |
| <i>Attending Surgeons.</i> | |
| HENRY C. COE, M. D., <i>Secretary.</i> | |

ANSWERS TO CORRESPONDENTS.

No. 295.—Thiersch's solution consists of 1 part of salicylic acid and 6 parts of boric acid, dissolved in 500 parts of hot water.

No. 296.—A five-per-cent. emulsion of creolin is probably germicidal, but not so "effective in a given time" as a 1-to-1,000 solution of corrosive sublimate. As to its being too strong to use on a surface where primary union is sought for, if the contact is prolonged, some of the creolin may cling to the surface and act as a foreign body; it will not interfere with healing in any other way.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE CURABILITY OF LOCOMOTOR ATAXIA,
WITH AN ACCOUNT OF OUR PRESENT KNOWLEDGE OF
ITS PATHOLOGICAL ANATOMY.

By LANDON CARTER GRAY, M. D.,

PROFESSOR OF NERVOUS AND MENTAL DISEASES IN THE NEW YORK POLYCLINIC.

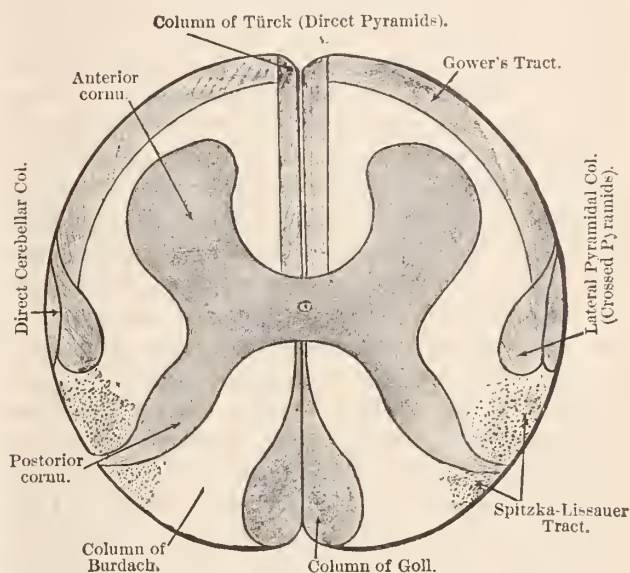
At the very outset of this subject we are confronted with the query as to what we mean by the term locomotor ataxia. The truth is that this designation, originally of clinical derivation, is no longer in consonance with either our modern clinical or pathological knowledge, for the ataxia of this disease is often wanting, is generally a late symptom, and in some instances is static and not locomotor. Nor are the other synonyms—tabes dorsalis and posterior sclerosis—any more appropriate, since the pathological process is not a softening or tabes, is occasionally of cervical and not dorsal origin, and modern research, as I shall point out later on, has demonstrated that the lesions are by no means confined to the posterior columns. Yet usage has atoned for the manifest imperfections of these terms, and it would be rash to suggest anything in their place until our present knowledge of the exact textural alterations and their anatomical site has become precise, as I have no doubt that it will be in the very near future. But by the term locomotor ataxia or its synonyms the neurological world, if I may venture to correctly interpret its consensus of opinion, means a group of symptoms characterized by stabbing or lightning-like pains, which in their typical form are sudden, severe, and not fixed in location; loss of knee-jerk; pupils responding sluggishly or not at all to light, generally to accommodation, small in size (Argyll-Robertson pupil); optic-nerve atrophy; ataxia, manifested by a peculiar gait and an inability to perform movements requiring accurate muscular coaptation; swaying of the body with eyes closed (Romberg symptom); patches of anaesthesia throughout the affected limbs; transient ptosis or strabismus; paroxysms of sudden and severe gastric, laryngeal, nephritic pains that are called crises; trophic joint lesions.

To these main pathognomonic symptoms may be added others of secondary importance, such as vesical paresis, various kinds of sensory impairments, muscular atrophies, paralyzes, trophic lesions, etc.; but these occur in other spinal diseases, and their diagnostic value will therefore be made or unmade by the accompaniment of the main or pathognomonic symptoms.

Until within about a decade these symptoms were thought to be due to disease of the posterior columns of the cord and the adjacent gray matter of the posterior horns, and there was a difference of opinion as to whether these posterior columns and cornua were together or separately the paths of sensory conduction.* Then Flechsig's embryological researches mapped out the direct cerebellar

* For the benefit of the non-neurological reader I have inserted a chart of the spinal cord, indicating the strands to which allusion is made in this paper.

columns in the posterior portion of the lateral columns. Then Woroschiloff demonstrated that section of both posterior columns and the posterior halves of both lateral col-



umns in the lower dorsal region of the rabbit did not prevent sensory impulses passing from the hinder limbs to the motor structures in the cervical cord and the brain. This was in 1874. Gowers, three years afterward, was the first one to confirm anatomically what Woroschiloff had observed physiologically by the discovery of the antero-lateral peripheral tract which has since come to be known as the Gowers column, although Westphal, Kahler, Pick, Strümpell, and Leyden had also partially figured this column before. That this is a sensory tract is proved by the fact that it is the site of an ascending degeneration, as is made patent by the cases of Haddon, Gowers, Westphal, and myself in cases of tabes dorsalis, and by Tooth in a case of compression myelitis. The objection of Déjérine, that the degeneration of this peripheral tract might be due to a meningitis, has been abundantly disproved, especially by Sherrington, who has found the column in the eighth month of intra-uterine life, and who has also demonstrated that it takes on its medullary covering at a different time from other strands of the cord. Bechterew, in his turn, has subdivided the Gowers tract into an anterior and posterior portion, and has also been confirmed by Sherrington's embryological observations. In 1885 Dr. E. C. Spitzka called attention to a tract which he describes as being "an area bordering on the entry line of the posterior roots and the posterior gray horn on one side and on the periphery of the cord on the other," and to this he gives the name of the *analgesia tract*, as he had found it impaired in all cases of analgesia, and healthy in all cases without analgesia. Immediately adjoining the gelatinous head of the posterior horn, as described by Dr. Spitzka in the same paper, there is a column of vertical fibers which he believes to bear the same relation to the gelatinous substance that the ascending roots of the fifth pair bear to the gelatinous substance of the tuber cinereum of Rolando, and this analogy inclines him to believe that the

tract may be possessed of trophic functions, although he can affirm nothing more positive than that it was healthy in those cases in which there were no trophic disturbances, as well as in that other class of cases with cutaneous lesions directly related to the fulminating pains. By one of those curious coincidences which have been so frequent in the history of medicine, in the same year Dr. Lissauer, in a long and minute description of the posterior horn in its relation to locomotor ataxia, also described these two tracts with great precision, calling the region in which they lie the *rim zone* (*Randzone*), and maintaining that it consisted mainly of fine fibers from the posterior roots, most of which passed into the gelatinous substance, while a smaller portion went to the inner part of the posterior columns. According to this author, the posterior horn receives posterior root fibers of two kinds—firstly, large ones that proceed directly into the spongy substance and then take another direction; secondly, small fibers (mixed with fibers from other columns) that branch immediately after entering the cornu and pass up as an ascending column in the *rim zone*. This *rim zone* was degenerated in twelve of thirteen cases examined by Lissauer, in three being a field of degeneration by itself. As a rule it was attacked early. In two of my own cases it was distinctly degenerated, although I do not know at what stage. Lissauer states that the large root fibers are affected at a late period relatively, disease of them proceeding slowly. In two cases they were normal. Lissauer also believes that the loss of the large root fibers of entry and the alterations in Clarke's column may be regarded as the first pathological phenomena in locomotor ataxia. The direct cerebellar column of Flechsig, the antero-lateral peripheral column of Gowers, and the Spitzka-Lissauer postero-lateral column, are therefore all outside of the posterior columns, and are yet sensory tracts which are affected in locomotor ataxia. The old subdivision of the posterior columns into the columns of Burdach and the columns of Goll remains unimpeached, except that the outlines of the latter in the different levels of the cord are being very considerably modified.

Until 1883 it was supposed that this symptom-group which we call locomotor ataxia was always due to affection of the sensory columns of the cord, but in that year Déjérine reported the following two cases of peripheral neuritis with these symptoms:

Male, aged forty. Symptoms of ataxia arrived at a marked stage of inco-ordination, loss of patellar reflex, very marked derangement of sensibility, anæsthesia, analgesia in the lower limbs, no myosis, slight diminution in volume of the pelvic muscles, Romberg symptom. *Post mortem* the spinal cord, the spinal ganglia, and the posterior roots normal macroscopically and microscopically, but the cutaneous nerves, taken from different regions of the calves and thighs and subjected to osmic acid and picro-carmin, showed very marked alterations of a parenchymatous neuritis.

Female, aged fifty, unable to walk. For several months she had felt pains in the lower extremities; shortly afterward she had difficulty in walking, and gradually she became unable to walk. Pains in the arms for several weeks. She was slightly cachectic, probably from alcoholism. The upright station was still possible, but only with the eyes open. No myosis. Emaciation of trunk muscles. Muscular strength still quite marked.

Slight diminution of faradaic contractility. Absolute inco-ordination of lower extremities, somewhat less in superior extremities. Anæsthesia and analgesia very marked, with retardation of several seconds in the transmission of painful impressions over the whole surface of the body, excepting the face. No thermo-anæsthesia. Loss of patellar reflex. The sensory troubles were more marked in the inferior portions of the skin. *Post mortem* an interstitial hepatitis was found. The spinal cord and the nerve roots appeared healthy to the naked eye. Microscopical examination, while nerves were still fresh, revealed extreme parenchymatous neuritis of the cutaneous nerves of the calves, thighs, arms, abdomen, and thorax. There was not a healthy tubule after preparation in the cutaneous nerves of the calves and thighs; osmic acid had no action upon them. The same alterations were found in the skin of other regions, diminishing gradually in ascending to the upper portion of the body. Slight alterations were found in the intramuscular nerves, such as slight increase of the nuclei of the primitive fibers. There was absolute integrity of the posterior and anterior roots throughout the length of the cord. After hardening, the spinal cord and the spinal ganglia were found microscopically intact.

The well-known law of a secondary degeneration is that there must be an original focus of disturbance from which the nerve fibers secondarily degenerate, upward in the case of the sensory strands, downward in the case of the motor strands. The beautiful safranin stainings of Adamkiewicz have made it evident that the lesion of the nerve tubules in locomotor ataxia primarily affects the axis cylinder or its medullary layer, and that the changes in the neuroglia are secondary, the results that had previously been obtained by Schiefferdecker and Homén with aniline blue being thus confirmed and rendered more precise; and this, to my mind, increases the probability that some such focus, either of arterial origin or due to some cellular alteration in the lower dorsal or lumbar portion of the cord, is the starting point of locomotor ataxia.

Dr. E. C. Spitzka regards the middle area of Burdach's columns as the site of the primary disease, as the connective tissue is thickest here, there is a dense maze of overlapping ascending and descending fibers from the posterior roots, and the lymphatics are most sparse. In other cases a meningitis, such as has often but by no means invariably been found, would be quite capable of acting as the starting point; and when we consider the autopsies in Déjérine's cases, and couple them with the well-known clinical fact that locomotor ataxia can follow a peripheral trauma, we may very properly surmise that the original lesion may occasionally be a peripheral one. It is difficult, however, to understand how a peripheral neuritis can be started in both lower extremities except by some underlying diathetic cause, while a very small focus of disturbance in the spinal cord itself or its meninges might be ample enough to affect bilateral strands. In the syphilitic cases this probability is even stronger of a focus whence the secondary degenerations proceed, the more especially if we may pin our faith to the microscopical descriptions given by Rumpf in his classical work upon "Syphilis of the Nervous System." Nor, in this study of locomotor ataxia, must we forget that the characteristic symptoms have been produced by the poisons of ergotine, lead, and arsenic, and in many of these cases lesions have been found in the posterior columns of the cord,

and, finally—most startling of all—cases have been reported where the cord and peripheral nerves have been found unaltered.

From this review, necessarily cursory and imperfect in a paper of this kind, it is evident that the symptom-group to which the name of locomotor ataxia has been given may be of spinal or of peripheral nerve origin, possibly sometimes without any organic changes. But little advance has been made, however, in the exact localization of the individual symptoms; indeed, the only results in this direction have been the *analgesia tract* described by Spitzka, and the opinion advanced by some authors that the ataxia is due to a loss of the muscular sense; but the former of these two lacks confirmation, while the latter is refuted by two cases of my own, whose history is herewith subjoined. Yet I can safely prophesy, I think, that we stand at the threshold of an era when the individual nerve fibers will be accurately delimited in the cord, when their functions will be thoroughly understood, when central or peripheral lesions of them will be diagnosticated by certain symptoms, and when the designation of locomotor ataxia or tabes dorsalis or posterior sclerosis will give way to the more scientific names that shall be based upon the central or peripheral localization—when, in a word, we shall map out the functions of areas in the cord as we have so brilliantly begun to do in the cortex of the cerebrum.

With this understanding of our present knowledge of the pathology and pathological anatomy of locomotor ataxia we may proceed to consider the question of the curability of cases presenting this symptom-group. It will be found that the patients who are alleged to have been cured, or whose symptoms have been seemingly arrested, are of the following kinds:

1. The syphilitic cases.
2. Cases associated with general paresis of the insane.
3. The non-syphilitic cases.

1. *The Syphilitic Cases.*—I do not need to remind you how the doctrine of the syphilitic causation of locomotor ataxia, first maintained by Fournier in 1875, in the face of the most furious opposition, has now come to be generally accepted, the percentage of some authors even running up to 90 per cent. The most remarkable confirmation of this view is to be found in the recent observation of Dr. L. Minor, of Moscow, showing the infrequency of locomotor ataxia among the Jews, who are singularly free from syphilitic affections. I may say in passing that this present belief in the frequent specific origin of tabes is a rare posthumous tribute to the clinical genius of Duchenne (of Boulogne), to whom we owe our first accurate description of the symptoms, and who specially remarked the occasional efficacy of iodide of potassium. These syphilitic cases may be subdivided into those in which the locomotor ataxia is developed after a specific infection, those in which the symptoms are associated with symptoms of intracranial syphilis, and those in which the lesion has been found to be a syphilitic spinal meningitis. The first group is illustrated by the following cases:

Dr. L. Lahmann ("Deutsche medicinische Wochenschrift"): Male, aged thirty-one, came under observation September 15,

1884. Twelve years before (1872) had had a hard chancre; was treated with inunction, and cured. He had never had any throat trouble, roseola, or any other symptom of constitutional disease. But somewhat later pains appeared in the shin bone, relieved by iodine. Patient is married, father of a healthy child. During summer of 1884 slight weariness of feet, worse in August, and gradually and steadily grew to the present degree of difficulty. Iodine was ordered in large doses up to fifty grammes, but the symptoms increased. The patient thought the cause of his trouble was the disappearance of the sweating of the feet, which had been present since taking cold in the summer of 1883. He complained of formication, numbness, feeling of stiffness and coldness in the feet and legs, weakness in walking, tottering gait, and uncertainty in walking, which was impossible in the dark. In urination, weakness, long tardiness, many interruptions.

Examination made evident great swaying with eyes closed; eyes and other sensory organs normal; no strabismus; no pupillary abnormality; vision normal; even with eyes open, standing was difficult, impossible upon one foot; the muscular bellies were everywhere strong, firm, and well nourished, possessed of normal strength while patient was sitting, but if the eyes were closed in sitting, the limbs were lifted above the point determined beforehand. When lying down with eyes closed the limb could not hit an object placed beforehand. Rising from a sitting position was done with the aid of the arms. Walking is uncertain to a high degree, swaying, ataxic; the legs are slung around; the gaze fixed upon the floor. Patient twice fell headlong in going out of the room. Painful going from house to house was forbidden and a rolling chair was recommended. The electro-muscular excitability to both currents was normal. Sensibility was faulty on the thorax anteriorly and posteriorly, on the abdomen and the os sacrum. Island-shaped areas of anæsthesia alternating with surfaces of greater sensibility. Æsthesiometer points at ten centimetres distance are not separately felt with certainty. The sense of location is also lessened in the legs. Sensation of pain with a needle lessened and retarded. The direction of the limbs is imperfectly felt when the eyes are closed. Passive movements of the toes imperfectly recognized when the eyes are closed. Sense of pressure and temperature are correctly appreciated to some degree when the differences are great. No painful points along the vertebral column on the outer surface of the iliac bone, or at the points of exit of the larger nerves. Patellar reflex gone on both sides. The movement of the fingers clumsy, as in counting money, the fingers clinging to one another. The treatment lasted a month, and consisted of warm baths, at 31.5° C., of twenty minutes' duration, and at irregular intervals; constant electrical current, from the angle of the lower jaw to the spinal cord, two minutes' duration, four to six milliampères; current to the spinal cord stable, descending, three to five minutes, eight to ten milliampères, determined by Hirschmann's galvanometer; internally, iodide of potassium, seven grammes and a half, divided into one hundred and twenty pills, three or four times daily. When patient left the hospital in the middle of October he was advised to continue the iodide, and after two months to use cold rubbing with water in the mornings. In May, 1885—that is, about eight months afterward—patient was heard from as being perfectly cured. Shortly afterward it was reported that the patient could descend a deep stairs backward, carrying a cradle with a child in it. On the 30th of July, 1885, Dr. Alfred Hoppe stated that the only abnormal symptom was the loss of the patellar reflex, and that the patient had done military service for twelve days in the beginning of June, at a time of great heat, without any ill consequences. In November, 1885, patient was still well, but the sweating of the feet had returned, while the patellar re-

flex was still absent, although a prickling is still left in the soles of the feet when he stands at work a whole day.

Danos ("L'Union médicale," September 29, 1883): Male, aged twenty-four, fatigued with intellectual work and sexual excesses. Had had syphilis several years before, according to his own statement and a letter of his physician. Had had mucous patches and a specific roscola. Entering the hospital in May, he complained of pains in the calf muscles, present in bed, but becoming of such intensity as to render him motionless when he attempted to rise or in walking only around the room. There were no cephalic symptoms. Pressure or the passage of a sponge wet with warm water along the vertebral column caused no pain. The sensibility of the skin in the inferior extremities was intact to the extent that it was present in its various degrees, but the patient felt frequent rapid shocks, very painful, instantaneous in the calves or the thighs, at the same time that he felt a very painful permanent constriction in the calves. In walking, the functional troubles became characteristic. He walked throwing forward the stiffened extremities, tapping the floor lightly with the toe, and, when deprived of the aid of sight, throwing his legs from one side to another, crossing them one on the other, walking titubatingly, and certainly falling unless care were taken to place a person at his side. In attempting to hold himself upright, in a stationary position with the eyes closed, he swayed, and it became immediately necessary to support him. He was gradually but rapidly subjected to a mixed treatment of five centigrammes of protoiodide of mercury, four to five grammes of iodide of potassium, and an equal dose of bromide of potassium administered daily. This treatment was interrupted occasionally during several days, because of the diarrhoea provoked. It was several weeks before any favorable result was visible, but toward the 18th of June—that is, about six weeks after beginning treatment—the pains began to disappear while he was in bed, and he could walk somewhat longer without difficulty; the upright station in walking again became possible without the eyes being fixed on the lower extremities. On the 23d of June he suddenly declared that he had no more pain, and that he could close his eyes without experiencing the least obstacle to locomotion, which we found to be true. On the 28th he was completely cured, walked quite normally, and desired to go out. Since this time Dr. Danos has twice seen the patient, who stated that he remained quite well, could attend to his affairs, and could run without inconvenience. He often closed the eyes in walking to assure himself that so doing was no inconvenience.

Dr. G. M. Hammond ("New York Medical Journal," August 30, 1884): Male, age not stated; ten years ago he came under the observation of Dr. James Anderson, of this city, for syphilitic lesion of the glans penis. Dr. Anderson is unable to say at this date whether it was a chancre or a chancroid. The secondary symptoms were never apparent. He has two perfectly healthy children. Not intemperate, but a steady drinker. In the winter of 1882 went on a spree, culminating in delirium tremens. Following this the prominent symptoms of ataxia appeared, though for the previous six months he had complained of sharp, shooting pains in the legs and slight difficulty in walking. He was now unable to stand without support. When assisted, his walk was characteristic of ataxia; there was a loss of the tendon reflex, a difficulty in retaining the urine, and anaesthesia of the lower limbs. The arms were somewhat affected, and there was partial loss of sight. Dr. Anderson prescribed iodide of potassium and bichloride of mercury, and referred him to Dr. Hammond for further treatment, who applied the actual cautery several times to the spine, together with dry cups, the ether spray, and static and galvanic electricity. From this time the patient began to improve, and a

year ago he was apparently perfectly well. He walked correctly, could stand with his eyes closed, could jump on and off a car while it was in motion. The tendon reflex returned. On this latter point he was tested by several members of the society. He has had no treatment whatever since then. He is stouter and seems to be in better condition now than he has been any time for several years. During the winter he frequently ran over the ice and snow drawing one of his children—a feat which any person afflicted with ataxia would find it impossible to accomplish.

Male, age not stated, consulted Dr. William A. Hammond about two years ago. He exhibited all the symptoms of locomotor ataxia, was unable to stand with the eyes closed, the tendon reflex was absent, he was unable to hold urine for any length of time, having to pass it as often as forty-five times a day, anaesthesia was present, and the passage of sensory impressions through the cord was considerably prolonged. A specific history was admitted. Dr. Hammond treated him with iodide of potassium and bichloride of mercury, alternating occasionally with nitrate of silver. The actual cautery was applied to the spine, together with dry cups, ether spray, and galvanism. Improvement in his symptoms was gradual but steady. The anaesthesia disappeared, he began to stand and walk better, and his urinary symptoms improved, but the tendon reflex did not return. Not having been seen for nearly a year, he was written to, and in reply stated that, as far as he was able to judge, he was completely cured of locomotor ataxia, having no difficulty in walking or standing in any position, and was free from vesical trouble.

Landsberg ("Berlin. klin. Woch.," 85, No. 33): Male, aged thirty-nine; nine years before had syphilis; was treated for six weeks with pills. Two and three years afterward cutaneous eruptions, bony growths and ulcerations, all treated successfully with iodide. Five years after, patient married; one child died in second year; no other children. Ten years after, paresis of left abducens, with a normal left pupil, while right one was myotic and reacted badly to light. Paresis disappeared. One year after this gastric crises appeared; later, lancinating pains in the extremities, creeping and furriness in the soles of the feet and the lower limbs. Impotence and then decrease of visual acuity. Objectively: Decrease of sensibility and retardation of pain sense in lower extremities; loss of patellar reflexes; ataxia: swaying marked in standing, increased with closed eyes; myosis and reflex pupillary immobility; optic-nerve atrophy; diminution of hearing. Inunctions of mercury, later iodide of potassium employed, and all symptoms disappeared, and for a year and a half patient has been perfectly well.

Rumpf, p. 437: Male, aged fifty-three. Chancre fifteen years before; secondary symptoms; treated with mercury. Patient then perfectly well till about two years before, when ulcers appeared on the arms and lower limbs; cured by inunction. Lancinating pains in the limbs and loins one year after; although patient had rheumatism for a long time, Rumpf thinks the pains in the lower extremities were too intense to be rheumatic. About a month later, furriness and numbness of the feet and toes and paresis of the lower limbs and trunk. Twenty-five inunctions, each of about three grammes, were used during four weeks, and the patient was so improved that standing and walking were again possible in a slight degree. With the administration of iodide of potassium the pains returned, gait became uncertain, and occasional diplopia appeared. Four weeks later, gait and all other movements were highly ataxic, but motor strength good; standing was possible with aid—without latter, marked swaying increased by closing eyes; cutaneous sensibility apparently not altered; point and head of a needle are well differentiated. Muscular sense apparently normal; patellar reflex

and Achilles reflex entirely wanting; ataxia present and tendon reflexes absent in the upper extremities; intense cincture feeling between the lower ribs and umbilicus; micturition difficult, with great effort. No sexual desire, headache, vertigo, or reflex pupillary immobility, although the left pupil is somewhat larger than the right. Treatment by inunction so improved the condition that, after eighty-five inunctions, the patient was discharged as entirely cured, and has for years been working as an engine-driver. Rumpf remarks of this case, as he had stated three years before, that the anti-syphilitic treatment had never given him another result like this.

Rumpf, Case IV, p. 379: Male, aged thirty-five. Four years before, chancre, cutaneous eruption, throat ulcer; four weeks and a half cure in Aix-la-Chapelle. Four months before, ulcers on rectum and cutaneous eruption on the scrotum and surrounding portion of the thigh. For one month and a half tickling and furriness in the feet and hands. Difficult micturition and uncertainty of gait in the dark. Objectively: Can stand well; distinct swaying with eyes shut; gait and free movements distinctly ataxic; motor strength good. Tact normal; pain-sense diminished. Sense of location of limbs good; tendon reflexes absent. Arms slightly ataxic; sense of location diminished; tendon reflexes wanting. No myosis or reflex pupillary immobility. On the upper thigh and scrotum a syphilitic. No other cause of tabes. The patient is a merchant; had never had any particular hardship or fatiguing journeys. After two months' treatment with mercury and the faradaic brush all symptoms of the disease had disappeared, excepting that the tendon reflexes were still absent. Two years afterward the patient was reported to be well, but Rumpf does not know the condition of tendon reflexes.

Rumpf, Case XXXVIII, p. 397: Male, aged forty. Chancre twenty years before; cutaneous eruption; internal mercurial treatment. No symptoms since. For years lancinating pains in lower limbs; for one year itching and fornication. Diminution of sensation in the limbs and unsteadiness of gait. Writing difficult, micturition also. Impotence. Iodide without effect. Objectively: Stands well; distinct swaying with closed eyes. Gait and fine movements distinctly ataxic, although strength well preserved. Tact diminished; pain-sense retarded. Sense of position of legs diminished. Tendon reflexes quite strong. In the arms slight ataxia, with retardation of pain-sense and tendon reflexes preserved. Rumpf states that this patient was treated with mercury and with the faradaic brush and that the pains disappeared, sensation became normal, the vesical functions re-established, and the ataxia disappeared; only the impotence remained. The patient resumed his usual occupation, and five years and a half afterward the cure had been maintained.

Rumpf, Case XXXIV, p. 444: Male, aged forty-six. Eighteen years before, chancre and cutaneous eruption; cure in one month. Married in thirty-first year; healthy children. Onset seven years before, with lancinating pains in lower limbs and difficult micturition. Then cincture feeling around the lower abdomen, and fornication in limbs and back. For one year impotence. Objectively: Standing somewhat unsteady; marked swaying with closed eyes. Gait and fine movements distinctly ataxic; excellent motor strength. Tact not perceptibly disturbed. Pain-sense absent. Sense of location of lower limbs very much diminished; tendon reflexes absent. Arms normal; tendon reflexes lacking. Myosis and reflex pupillary immobility. After administration of twenty-eight inunctions of mercury, application of faradaic brush and galvanism, the abnormal sensations and the cincture feeling disappeared and the pain-sense returned. Then the sense of location of lower limbs became better. In the middle of February the treatment was interrupted, and re-

newed in April. After six weeks further the ataxia had disappeared, and the patient could walk for hours. He was then discharged. Three months afterward he reported that the impotence had also disappeared, and again, a year and a half afterward, abnormal symptoms are said to have disappeared, with the exception that the tendon reflexes are still absent.

Rumpf, Case XXVIII, page 393: Male, aged forty-six. Twenty-one years before, chancre; cutaneous eruption; internal administration of mercury; no syphilitic phenomena since. Since the thirty-sixth year occasional lancinating pains in the lower limbs that became very intense at one time. Since the forty-first year pains in the arms and uncertainty in writing; itching and fornication in the limbs and arms; difficult micturition. Since the forty-fourth year uncertainty of gait, greatly increased in the last few weeks; walking alone impossible. Objectively: Standing with feet approximated or closed eyes impossible. Gait and all movements highly ataxic, although motor strength well preserved. Walking alone possible with aid of another man. Tact diminished; pain-sense absent. Sense of location greatly diminished; tendon reflexes wanting. Arms distinctly ataxic; pain-sense and tendon reflexes wanting. Atrophy of the right optic nerve. The patient knows no cause for the trouble. He has not been exposed to catching cold or to any hardship, and has been a very temperate man. After two months' treatment with mercury and the faradaic brush the patient could walk with a cane through the room. After three months he could walk in the garden, and after six months he was dismissed, as his gait was normal and all other symptoms had disappeared, except a slight occasional urinary incontinence and slight tremor of the hand, which latter, however, was of long standing. After six months further, which was spent by the patient in the country, he resumed his occupation, and for two years has been employed in a counting-house, complaining only of a certain weakness of the sphincter vesicæ.

Rumpf refers to three further cases—Cases V, IX, and XXXV—in all of which the lancinating pains had either disappeared or were reduced to a minimum, the ataxia has entirely disappeared or only observable with great tension, the myosis and reflex pupillary mobility had disappeared, but the sensibility, especially the pain sense, had remained diminished. Of these, one has for a year acted as a railroad secretary, the other as a teacher in a high school for two years. Both had come under treatment, as they were not capable of attending to their business, to which they were thus enabled to return.

Rumpf's treatment (page 451) consisted first of an inunction for four or five weeks, followed by iodide of potassium for some length of time. If the patient remained long enough under treatment, inunction was again used, again to be followed by the iodide, the latter being employed in doses of two to two grammes and a half daily. Gingivitis was very seldom observed by this method. Chlorate of potassium was also employed as a gargle, and a trouble of the gums was very seldom observed. The anti-syphilitic treatment was continued for a year or a year and a half. Lately he had employed a new mercurial preparation for subcutaneous injection of Dr. Schnetz.

Erb ("Arch. f. klin. Medicin," 1879, Bd. 24) speaks of quite a severe case, without giving the details, that had resisted the ordinary therapeutic methods, such as galvanism, hydrotherapy, Naheim baths, nitrate of silver, but

was made to improve so much by mercurial inunction that the patient has for years been able to ply his affairs.

Erb also narrates this case: Male, aged fifty-seven, syphilis fourteen years before. For eight years has had gastric catarrh. Duration of *tabes* three years. Initial symptoms began with lancinating pains of great intensity; slight anæsthesia of the lower limbs; later, uncertainty of the lower limbs. Present condition: Slight ataxia, easily fatigued, general strength good. Slight anæsthesia of the lower limbs; distinct swaying with closed eyes. Skin reflexes very lively. Tendon reflexes wanting. Some vesical weakness. High degree of spinal myosis. Cranial nerves, arms, vertebral column normal. Impairment of memory and intelligence; drowsiness. Signs of syphilis still visible upon the skin and tongue. Erb simply says that this case was as greatly improved as the preceding one, without giving details. In two other cases mercurial treatment was without any effect.

The following cases are those in which the locomotor ataxia was associated with symptoms of intracranial syphilis:

Berger ("Deutsch. med. Woch.," 1885 No. 2): Male, aged thirty, chancre six years before, probably hard, healing under entirely local treatment in about six weeks; no secondary symptoms. Four years after, being chilled, lancinating pains in both lower extremities, then furriness and formication in lower extremities, and especially on soles of feet, formication in different fingers, painful tension in the neck, diplopia, and cephalalgia. After several months of lassitude and inability for exertion, uncertainty of gait began, especially in the dark. Frequent vesical tenesmus, obstructions. Loss of sexual desire and potentiality. Objectively: Great ataxia, swaying with closed eyes, great diminution of tact in the lower extremities, in lesser degree of *entaneus* general sensibility. Especially remarkable is disturbance of pressure sense, greatest in the left leg, so that a weight of twenty pounds is not at all perceived when placed on anterior surface of left thigh. Muscular sense and perception of passive movements are highly disturbed, especially in the foot joints and toe joints of the left foot. Frequent pollutions, ischuria, obstructions. Reduced visual acuity of both eyes. Lower inner quadrant of visual field of right eye entirely impaired, also upper inner corresponding portion is not entirely intact; but externally his eye is normal. In left eye the lower outer quadrant is impaired. Optic nerve is somewhat reddish in color, veins somewhat more swollen than normal. After eight weeks of galvanic treatment (back and peripheral nerve trunks of the upper and lower extremity) and use of iodide of potassium, there was improvement of the inco-ordination and the anæsthesia, but cure only after inunction and further use of the iodide. Later there were intense, especially nocturnal, cephalic pains, disappearing after short administration of iodide. Patient remained perfectly able to perform his duties as infantry officer, and after fifteen years no sign was present of the former spinal lesion.

But Berger could detail no other cures.

The following case of Oppenheim's is one of syphilitic spinal meningitis:

Dr. Hermann Oppenheim ("Berlin. klin. Woch.," December 31, 1888): Female, aged thirty-one, syphilitically infected; first seen in May, 1885; former keratitis parenchymatosa and iridochorioiditis syphilitica dating back to 1881. In February, 1885, pains in limbs began, weakness of them, tendon reflex lost, treatment by inunction begun, and decided improvement attained, so that patient was dismissed "cured" in short time. In May same symptoms began again with greater intensity.

And the following: Tearing pains, especially in the right arm; hoarseness; spasmodic attacks of coughing (of the character of laryngeal crises); difficulty of deglutition; double ptosis; almost complete paralysis of right motor oculi, a paresis of the left in certain of its branches; double pupillary immobility (iritic synechiæ); paresis of one soft palate; attacks of vomiting; paralysis of the right vocal cord; galvanic reaction lost in right recurrent laryngeal, while that of the left was normal; paresis of the right trapezius and sterno-cleido-mastoid, with partial reaction of degeneration; constant increase in pulse frequency; patellar tendon reflex on both sides; sensory impairment in legs; vesical difficulties; Romberg symptom. Decided improvement with inunction. In September, 1885, the immobility of both ocular bulbs had been restored, the reaction of the left pupil to light was again present, the pulse had a normal beat, while the attacks of vomiting and difficulty of deglutition and the disturbances of distribution of the right vago-accessorians had been reduced to the paralysis of the vocal cord. Patient left the hospital, but entered again in January, 1886, when she had a paralysis of the left motor oculi and paresis of the right internal rectus, paresis of the legs, patellar tendon reflex lost, sensory impairment, especially a feeling of felt under the soles of the feet, swaying with closed eyes, vesical difficulty, attacks of vomiting, laryngeal crises, etc.

At this time, however, while knee-jerk was gone, tremor of the foot was present. Further treatment by inunction was without effect, although nearly five hundred grammes of nunguentum hydrarg. cinereum were used, and in February, 1887, case was regarded as incurable. In July of the same year patient was again examined, when, to the narrator's great astonishment, there was great exaggeration of the tendon reflex, with foot clonns and general spastic paresis of the lower extremities. For these reasons the diagnosis of *tabes* was abandoned, and no definite one made in its stead. In April, 1888, patient died of carcinoma uteri. Autopsy made by Dr. Ewald. Macroscopically there was found a focus of softening in the left corpus striatum, but pathologically in the vessels and membranes of the brain and in the middle and lower cervical and upper and lower lumbar regions the membranes were greatly thickened, adherent to one another and to the cord, and imbedded in them was a grayish fatty tissue, here and there fibrous, developed in varying degree in the different localities. These now embraced the nerve roots. Where these alterations were the greatest the spinal outlines were entirely obliterated and the substance soft. The pathological process was an internal pachymeningitis and a chronic arachnitis. On the inner surface of the dura was a deposit of fibrous tissue of many layers. The arachnoid and the pia were infiltrated with a strongly developed granular tissue, very cellular, and containing numerous newly formed vessels. These also embraced the nerve-roots and sent prolongations into them both toward the periphery and the spinal substance. There was secondary degeneration of the cord upward and backward in some places; in others the peripheral portions of the cord were alone affected. The spinal vessels, and also the larger arteries, present the lesions of endarteritis, and especially of chronic peri-arteritis. A slight degree of arachnitis also existed in the upper spinal regions, together with a moderate ependymitis on the floor of the fourth ventricle. Lesions were also found in the medulla oblongata, pons, corpora quadrigemina, mainly about the region of the vagus, accessorius, glosso-pharyngeal, and the nuclei of the ocular muscles. There was marked atrophy of the right solitary bundle, very complete throughout the whole length, and evident macroscopically. Two small foci of softening were found in the region of the tegmentum and the crus cerebri. The cerebral arteries, seemingly normal to the naked eye, were found

microscopically markedly altered, with specially great proliferation of the intima.

The connection of general paresis and locomotor ataxia is too well known to be disputed, and the following case of my own illustrates this connection:

Male, age forty, hard chancre thirteen years ago, secondary sequelæ, treated by a well-known syphilographer. Has been suffering for several years with stabbing pains, severe, sudden, and wandering, about lower limbs, with difficulty of micturition and with difficulty of walking, which had been first noticed at night. First examined in May, 1886. Loss of both patellar reflexes. Optic-nerve atrophy. Swaying with the feet closely approximated and almost unable to stand with eyes closed, doing it imperfectly with eyes open; upper extremities also slightly ataxic. Argyll-Robertson pupil. Tactile sense greatly impaired in the feet; muscular sense imperfect; great retardation of pain sense. Considerable distress and difficulty in micturition. Gastric crises of great intensity every few months. This patient improved greatly under treatment with the iodide in large doses, mercurial inunctions, and galvanism, so that at the end of four months, when he discontinued the treatment, he was suffering but very little from his pains, his ataxia was considerably improved, his vesical symptoms had almost entirely disappeared, but the sensory impairments and the patellar reflexes were essentially unaltered. This patient was able to undertake a most fatiguing journey in the winter time into the mountains of Oregon, where he was snow-bound for several weeks in a mountain camp, and yet claims to have grown no worse. Two years afterward he returned to New York, maintaining that he was much better. A careful examination showed that the optic-nerve atrophy was still unaltered, the patellar reflex was still absent; the tactile anæsthesia and the conduction of pain were seemingly much improved. His bladder symptoms and his lancinating pains were said to have disappeared. But, observing him at different times through a period of several weeks, I found that there was an occasional inequality of the pupil, that his ataxia was still very evident, that there was a marked fibrillary tremor of the tongue present every time I examined him, an occasional fibrillary tremor of the facial muscles, and occasional difficulty of articulation. His friends and business associates also confirmed what was evident to me in my short interviews with him in my office—viz., that he was absent-minded, undecided, and confused about business matters, and occasionally so apathetic as to excite remark from those with whom he was doing business. I have since had this patient under observation through the last winter, and it is very evident that his mental symptoms are slowly and steadily progressing.

The so-called cures have been almost entirely confined to the syphilitic cases, while non-syphilitic cases have ordinarily been improved by treatment. The famous case of Schultze and Erb belongs to this category.

Friedrich Schultze ("Arch. f. Psychiatric," 1882, p. 232): The patient came under Erb's observation in April, 1871. He was then forty three years old, had had for two or three years continuous lancinating pains in the lower extremities, and for one year unsteadiness of the legs, commencing vesical symptoms, and a feeling of numbness in the left ulna. These phenomena increased, and a feeling of uncertainty in walking in the dark became stronger, nocturnal enuresis appeared, and even by day it became difficult to retain the urine. With nitrate of silver the condition was improved, so that the patient did not sway so much in standing with closed eyes, and the irregular move-

ments of the limbs almost disappeared. The patient was treated from April, 1871, with the galvanic current. At this time there was only a slight uncertainty in walking, barely perceptible to the eye. There were no sensory disturbances in the lower extremities. On the ulnar side of the left hand and in the fourth and fifth finger there was a feeling of numbness. Sexual desire greatly diminished. Nocturnal enuresis. In the middle of May this nocturnal enuresis disappeared for the first time, and the patient could take long tramps in the mountains without especial weariness. The lancinating pains present at the beginning of the electrical treatment had entirely disappeared, but the vesical weakness still remained in slight degree, as well as the feeling of numbness in the left ulnar region. In February, 1872, the improvement had persisted, the lancinating pains were almost entirely gone, the numbness in the left ulna much less, but the feeling of fatigue in the lower extremities is still abnormally great, and after an hour's walk the patient feels himself fatigued till the next day. Vesical difficulty unaltered. During the summer of 1872 and 1873 the patient was treated several times weekly with galvanism. In 1873 and later there were no more lancinating pains, the abnormal feeling in the left ulnar region had almost disappeared, the general health was good, no ataxic walk, occasionally only nocturnal enuresis and urinary dribbling. In this condition the patient remained to the end of January, 1880—*i. e.*, about twelve years after the beginning of the first phenomena. At this time Dr. Schultze saw and examined him. His walk was perfectly normal. Upper eyelids sunken, although a paralytic ptosis could not be assumed, as the patient had had this peculiarity in youth, and the mobility of the lids had not been re-established. No demonstrable sensory disturbances. Patellar reflex gone on both sides. Vesical paralysis of moderate degree, with nocturnal enuresis and urinary dribbling by day, vesical catarrh, urine with non-alkaline reaction. Pupils small, reacting feebly to light. In the electric treatment the bladder was especially treated, without any particular effect after twelve sittings. The patient was strong, and took daily walks of an hour without finding himself unusually fatigued. Death resulted from poisoning, and the autopsy was made nine hours after death. Spinal cord was found abnormally thin and soft, the lumbar enlargement being ill-defined. Dura and pia were normal. Posterior columns were somewhat shrunken in the lumbar portion, and in the upper portion of the lumbar enlargement showed a distinctly gray-colored portion about in the middle of the area of the posterior columns, and not touching either the posterior commissure or the posterior periphery. This focus was smaller below. In the lumbar and cervical cord there was nothing abnormal macroscopically. The cerebral pia was thickened on the anterior half of the convexity, but the convolutions were normal. The ependyma was not granular, and the large arteries not atheromatous. There were also pyelitis and cystitis. The hardened preparation showed microscopically that the cord was of abnormally small volume in the dorsal and lumbar portions, less so in the cervical. With glycerin preparations the degeneration of the posterior columns could be seen extending in the lower third of the lumbar enlargement over almost the whole surface between both posterior horns in the one direction, and between the posterior commissure and posterior periphery in the other. The portions bordering immediately upon the posterior commissure were richer in nerve tubules, the other portions being equally diseased to a high degree. In the middle and upper portion of the lumbar enlargement the posterior columns immediately adjoining the posterior horns were somewhat richer in nerve tubules. Microscopically, in the greatest portion of the posterior column there was a rarefaction of the nerve fibers. There was a degeneration of the posterior column adjoining the posterior

horns, which was indistinct in the lowest third of the dorsal region and distinct in the upper portions, representing the entry of the inner nerve roots and reaching to the point of the posterior horns, while the anterior third of the posterior horns was bounded on the inner side by intact nerve fibers. In the cervical region the columns of Goll were intact. But the boundary line between the columns of Goll and the columns of Burdach was marked by a very small zone of degenerated substance, club-shaped anteriorly in the upper portion of the cervical region, near the posterior commissure, in such a manner that the larger portion of the anterior region of the Burdach column was most degenerated. In the upper two thirds of the cervical enlargement this zone is widened toward the pia mater, so that a complete triangle of degenerated substance resulted, with the basis to the gray substance of the Burdach column, the apex toward the aforesaid small zone. Throughout the cervical enlargement the region of the inner nerve roots was degenerated, as has been described in the dorsal region, more so upon the left side, so that here, in places, half of the substance of the Burdach column was implicated. Farther toward the medulla the degeneration limited itself to the boundary between the columns of Burdach and the columns of Goll, decreasing in extent and intensity. The other white strands, especially the lateral columns and the gray substance, were normal. With carmine preparations the abnormal areas described in the posterior columns were found to be in a condition of reduction and atrophy of the nerve fibers and an increase of connective-tissue substance. Granular cells were lacking, even in fresh glycerin preparation; but corpora amylacea were present in small number. The anterior ganglion cells were intact. There was, therefore, in general, a diffuse degeneration of moderate intensity of the posterior columns in the lumbar region; a degeneration of the outer portions of the column of Burdach in the dorsal region, least marked in the lower fourth of the same; partial degeneration of the columns of Burdach, especially in the outer portions, but more extended in the cervical than in the lumbar region; moderate implication of the columns of Goll.

This case demonstrates the almost incredible fact that almost all the symptoms of the disease may disappear while the spinal lesion persists unabated.

There can be no question whatsoever but that the improvement in many of the syphilitic cases has been such as would have warranted the term "cure," did we not know of this remarkable case of Schultze's; even in the face of it we are perfectly justified in saying that these syphilitic cases have been practically cured. The best results seem to have been attained by the use of mercury, usually in the form ofunction, in conjunction with large doses of the iodide of potassium. I have not been able to obtain such brilliant results in these syphilitic cases as have been described by such reliable authors as those whom I have quoted, and especially by such men as Fournier and Rumpf, for the best that I have been able to effect in my cases has been an improvement in some such symptoms as the pains and other sensory affections, less often in the ataxia, and never in such phenomena as the Argyll-Robertson pupil and the lost patellar reflex. A great many cases of so-called cures will not bear rigid analysis, and are very often cases of ordinary myelitis of subacute or chronic nature, recovering readily under proper treatment, as such cases often do, and as they generally do when they are of specific causation. In my experience the non-syphilitic cases of ataxia have been very intract-

able. I have found, to be sure, that galvanism, rest, iodide of potassium, nitrate of silver, and the faradaic brush would effect a certain amount of improvement in some of these cases, but only in certain symptoms. The ataxia has been a singularly obstinate symptom in this class of cases. The lancinating pains have been best treated by absolute rest for several weeks at the outset of treatment, and great attention to this point for a varying time afterward; indeed, so well known was this fact in my hospital wards that it became the routine treatment for those cases in which the pains were severe. I was somewhat chagrined, as I had flattered myself that this treatment was original with me, to learn from Dr. Weir Mitchell, in a casual conversation with him last year, that he had advocated this treatment as far back as 1873, in a contribution to the "American Journal of the Medical Sciences," and had frequently mentioned it to M. Charcot without being able to overcome the incredulity of the latter gentleman. It is impossible to ascertain how many of the older cases of the so-called cures or improvement were without specific infection, and this casts the more confusion into our estimate of the results, as it is undoubtedly true that many of the syphilitic cases are absolutely unimprovable, as any one may satisfy himself by reading the histories given by Fournier and Rumpf and as all of us have probably seen in our own experience. Nerve stretching has not, as a rule, been successful, although Benedikt has reported some great successes, but the fact remains that several patients have died after the operation. The results of the latest neurological fad, suspension—first really introduced, I am sorry to say, into this country by the sensationalism of the New York "Herald"—have been gathered and sifted very completely by Dr. C. Eugene Riggs, of St. Paul, in a recent article in which he points out that "the most brilliant successes have been obtained by French and American experimenters, while the Germans are lacking at the same time in enthusiasm and results." Certain it is that these startlingly brilliant effects that have been described by the French and German physicians are not exaggerated, if I may infer from my own limited experience in a few cases, and my own results were the more surprising to me as I was greatly prejudiced against the method at the start, although my patients have been treated too recently to permit of a report as yet. Dr. Motchoutkouski, of Moscow, to whose publication in 1883 we owe our first suggestion of the method, speaks of one patient whose only remaining symptoms at the end of five years were myosis and absence of patellar reflex. One great advantage of the suspension treatment, should it prove to be permanent in its effect, is the marked improvement that it effects in the ataxia, a singularly intractable symptom except in certain of the syphilitic cases. Rumpf speaks with great positiveness of the beneficial effects of the faradaic brush in diminishing the anæsthesia, and I can bear him out in this assertion.

As Schultze's patient lost most of his characteristic symptoms during a period of some twelve years, notwithstanding that the posterior columns were found to be in the usual diseased condition, the question inevitably arises as to whether this may not also have been the case in the so-called cures. We are therefore forced to the conclusion

that there is no record of a really authentic cure of locomotor ataxia. We may furthermore affirm that the cases of syphilitic locomotor ataxia have yielded the best results, and that they have done best the earlier the treatment has been begun; while many of the non-syphilitic cases have been improved by the various methods of treatment that have been enumerated, although there is a doubt as to what proportion of this improvement may have been due to the inhibitory effects of a supervening general paresis.

But this scientific doubt should not blind us to the immense practical advantage of such improvement as has been described in so terrible a disease as locomotor ataxia, and it would be a great boon to us to be able to differentiate the cases of favorable prognosis from the hopeless ones. In this regard it should be borne in mind that many of the cases which I have narrated have been associated with an intracranial syphilis, and that others have been in the early stage of locomotor ataxia. Fournier expressly states that the prognosis is much better in what he calls the pre-ataxic stage. If the spinal lesion of this disease be a secondary degeneration starting from a primary focus of inflammation or cellular alteration in the lower dorsal or lumbar cord, it would seem reasonable to assume that this primary focus would be the lesion that could be treated best, especially in the syphilitic cases, and that the secondary degenerations resulting therefrom would be as hopeless as they are in other portions of the cord. We should therefore vigorously treat our syphilitic cases of locomotor ataxia, at as early a stage as possible, with large doses of mercury and the iodide of potassium. Nor should this treatment be any the less vigorous when an accompanying intracranial syphilis can be diagnosed. As I pointed out some two years and a half ago, the pathognomonic symptoms of some forms of intracranial syphilis are these:

1. A quasi-periodical cephalalgia, generally nocturnal, but occurring at certain other times of the day—especially in the afternoon.

2. A hemiplegia under forty years of age, with or without preceding cephalalgia of the foregoing type.

3. Cephalalgia followed by hemiplegia, which bear a singular relationship to one another in that the cephalalgia ceases immediately upon the supervention of the hemiplegia and seldom recurs.

4. Convulsions in the adult, which have not been preceded by convulsions in infancy, and are not of traumatic or nephritic origin, or due to pregnancy, or in an individual subject to migraine.

5. Symptoms indicative of a lesion at the base of the brain.

6. A comatose condition extending over days or weeks, not traumatic, diabetic, meningitic, nephritic, or from typhoid fever.

As I said at that time, these symptoms may be regarded as proof of the kind to which lawyers give the name of "prima facie"—*i. e.*, proof amounting to a presumption, which may, however, be rebutted by adequate testimony to the contrary. I should be extremely suspicious of any case of locomotor ataxia in which these symptoms were present in larger or smaller combination, even though I could not ob-

tain a certain history of syphilitic infection. I know of no certain signs by which we can recognize the cases of peripheral origin or the pseudo-tabes.

Appendix.

Developing of Symptoms of Locomotor Ataxia Twelve Years after Chancre; Rapid Loss of Sight; no Loss of Muscular Sense; Abatement of General Symptoms.—Age fifty, merchant. Soldier during the war, 1861 to 1865. Had dysentery. About twelve years ago had chancre; does not think it was followed by any secondary symptoms. Was never treated. Always been healthy. About four years ago had sudden attacks of dizziness and sharp pains through the temples. Six months after, noticed he did not walk as firmly as before. "While I did not exactly stagger, I always felt when these spells were on as if I swayed." About this time, every few weeks, would have sharp piercing pains in legs and back. About a year after the onset of these symptoms he fell off a stoop (at night) and struck the back of his head and spine. The parts were sore for a few days, when all symptoms passed away. Five months after, noticed his sight was not so good; consulted oculists, who did not remark any ophthalmoscopic changes. Eight months later had pronounced atrophy (white) of both optic nerves, with bare perception of light.

Examined May 6, 1889. Well-nourished man with fixed expression and dilated pupils. No loss of power, but he complains of being easily fatigued and then he staggers. Has attacks of dizziness and paroxysms of pains in buttocks and back. So sudden and sharp are the attacks that he can not sleep. These pains are decidedly vagabond. Never had any evidences of visceral crises. No rectal or vesical impairment. No plantar anaesthesia. Muscular sense not impaired. Sexual power about as usual. Knee-jerks absent. His loss of vision prevents many tests. Has typical motor ataxia in the lower limbs.

Treatment by massage, galvanism, nitrate of silver, pilocarpine, and strychnine. All symptoms have disappeared, and, as he remarks, "If it were not for my blindness I would be a well man."

Male, aged thirty-five, car-driver, twelve years ago had chancre; was followed by full secondaries; did not undergo treatment. Says he was perfectly well until two years ago, when he noticed a feeling of tightness about his body and a sense of numbness over left side. These symptoms continued until five months ago, when he became constipated; had difficulty in making water; left hand and forearm became numb (ulnar distribution). Began to be uncertain in walking and staggered badly in the dark. His feet became so numb that he could not tell where they were. About that time he suffered greatly from "neuralgic pains" of sudden onset. Two months ago total paresis of left third nerve came on. Loss of sexual power for past two years. Is markedly ataxic, static and locomotor. Walks heavily, heels well down, feet well apart. Tactile sense over toes impaired, diminished on outer side of both legs, on right of outer thigh, on left of inner thigh. Muscular sense not impaired in feet, not impaired in right hand. Left over ulnar distribution absent. Reflexes—plantar, patellar, cremasteric, epigastric—absent. Left ptosis. Paresis of iris and recti (recovering). Some weakness of left facial muscles. No electrical changes. No facial anaesthesia. No ophthalmoscopic changes.

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6 EAST FORTY-NINTH STREET, NEW YORK.

THE TREATMENT OF ACUTE GASTRO-ENTERITIS
 OCCURRING AMONG INFANTS AND CHILDREN,
 WITH SOME REMARKS ON
 THE USE OF PEROXIDE OF HYDROGEN.

By ROBERT H. GREENE, A. M., M. D.

My apology for writing at this season concerning a disease which is confined so closely to the hottest days of summer is a desire to arouse what interest I can, before hot weather comes again, in the search for some more effective methods of home treatment, or for some better combination of remedial measures that we already have, than are at present in use. And it is fair to suppose that the same treatment which would be most effective in this would be of use in diseases closely allied to it. During the summers of 1887 and 1888, as attending physician to the Floating

Hospital of St. John's Guild, I had an opportunity to examine the effects of air from the open sea on this disease in many thousand cases. That the air from the open sea is of great benefit to children suffering from this and diseases resembling it is a fact generally known to the profession. That it is an almost absolute specific can be vouched for by the large number of physicians who have visited this institution since its commencement, myself included. Would it, therefore, not be wise to try and analyze the methods which Nature teaches us, and might we not expect good results from imitating her methods as far as practicable? We find as positive factors that Nature uses in her treatment of this disease—

First. A generally lowered temperature.

Second. The sodium chloride present in the atmosphere.

Third. The destructive action of the oxidizing constituents of the atmosphere on the products of decomposition. And, as a negative factor, the absence from the atmosphere of any infective material.

1. That the air from the open sea must be of great purity would seem evident to every one, and the absence of microbes has also been demonstrated, according to von Ziemssen, by the experiments of Mireau and Miquel.

2. It is not easy to understand definitely how the beneficial results derived from the lower temperature are obtained. We may, however, conceive that by stimulating the nerve centers it slows the action of the heart, that by increasing the absorption of heat from the body it reduces the fever, and that some benefit is derived from a preventive action exercised upon the further continuance of decomposition.

3. It is probable that the ultimate effect of the salt in the atmosphere is similar to its effect when taken in solution. It is generally conceded that part of the action of chloride of sodium is its stimulating effect upon all the properties of secretion and excretion. Professor A. Jacobi says, speaking of the action of salt in solution: "It is chiefly chloride of sodium, other solutions not excepted, which renders the generation and disintegration of tissue possible." Although late experiments would seem to show that the action of a solution of sodium chloride in itself is not destructive to bacilli, we may presume that, entering as it does into the formation of hydrochloric acid in the stomach, and also as sodium salts are among the constituents of the bile, through assisting in the formation of these, it exerts an antiseptic influence on the results of fermentation in the stomach and intestines. 4. It is evident that, owing to the absence of microbes and decomposing material from the air, nature has the opportunity through the oxidizing constituents—such as ozone, etc.—to more rapidly and thoroughly destroy any morbid products present. How, then, can we most closely imitate Nature in her successful treatment of this and allied diseases when we are unable to place our patients in the best hygienic atmosphere?

First. By insisting on as thorough ventilation as possible, we can, to a certain extent, dilute the poisonous material present in the air.

Second. When practicable, "we may succeed, to some

extent, in cooling the air of the sick-room artificially by the use of large pieces of ice." By frequent sponging with cool water, and by its application with cloths to various parts of the body, through its evaporation, aided probably "by some stimulant action on the central nervous system," we may reduce the fever. Bearing in mind the extreme sensibility of the nerve centers in children, and remembering that Nature does nothing violent in her treatment of this disease, it would seem well to refrain from the shock of powerful douches, or the abstraction of heat from the body by conduction through immersion in the cold bath itself.

Third. We should be able to get the physiological effects of the sodium chloride by the addition of salt to the cold applications and by giving small quantities internally in solution, taking care that the solution is so well diluted as not to have too irritating an effect on the intestinal canal.

Fourth. We must increase the oxidizing power of the atmosphere by the use—either through the mouth, by rectal injections, or possibly by inhalations—of some substance which would assist in the more rapid oxidation of the various products of fermentation present. What clinical reports we have had of the use of oxygen gas itself offer us little encouragement to look there confidently for means of relief. But, from the use of peroxide of hydrogen,* from the decomposition of which ozone is formed, or the discovery of some remedy chemically resembling it, I think we may find useful aid to the other methods stated. In fact, peroxide of hydrogen has been shown to be present as a constituent of the atmosphere, according to Fox,† by the experiments of Frémy, Schönbein, Meissner, and Corup Besanez. I have been able to obtain reports from one source only where this remedy has been used for this disease. I am informed by Dr. J. Mount Bleyer that in 1886, at the Eastern Dispensary and in private practice, he used this remedy in forty cases of acute gastro-enteritis, his practice being to give first some alkaline solution, such as one of sodium bicarbonate, to remove excess of mucus, etc., and then give a teaspoonful, three times a day, of glyeozone, the glyeozone being a twenty-five-per-cent. solution of peroxide of hydrogen in glycerin (the glycerin being used to prevent the formation of gas, which, when a solution of peroxide of hydrogen in water is swallowed, it is liable to give rise to too rapidly), ordering the rectal injection twice daily of a solution consisting of one ounce of Ch. Marehand's solution of peroxide of hydrogen and nine ounces of water, at the temperature of 70° F. He reports "very gratifying results in about ninety per cent. of the cases treated."‡ It is generally considered to be harmless, when free from impurities, when taken internally in solution of such strength

* See E. R. Squibb, "Hydrogen Peroxide," Squibb's "Ephemeris," July, 1889. J. Mount Bleyer, "Peroxide of Hydrogen in Whooping-cough"; "Practical Hints in Connection with the Intubation of the Larynx"; "Dioxide of Hydrogen in Diphtheria, Diseases of Nose, Throat, and Chest."

† "Ozone and Autozone," by Cornelius B. Fox, M. D., London.

‡ Dr. Bleyer did not publish his reports, from the fact of having been more particularly interested in observing the effects of this remedial agent in diseases of the respiratory organs.

as to be of great antiseptic value. It would certainly seem that, through close observation and careful experimentation, aided, perhaps, by the discovery of better methods in its manufacture, we may be able to prescribe this remedy intelligently and with gratifying results in some intestinal diseases, especially among children, where the products of fermentation are so abundant and complex, as well as in many other diseases to its action in which our attention has been more generally called.

105 WEST SEVENTY-FIRST STREET.

A CASE OF ADENITIS CALCULOSA.

By W. C. KLOMAN, M. D.,
BALTIMORE.

F. D., a boy of thirteen years, had scarlet fever in February, 1889. As far as I could ascertain (not having been the attendant physician), it was a case of the anginose variety, and of moderate severity. After convalescence, an enlargement of one of the left submaxillary glands began, which gradually increased until the mass was of the size of a hen's egg. I first saw him in the beginning of April, 1889. The tumor was then of the size mentioned, smooth to the touch, having no lobulations or irregularities of the surface. It was dense and firm, feeling very much like a subcutaneous fibroid; it was not painful, but firm pressure elicited sensibility. The boy was somewhat anæmic, but there were no other evidences of scrofula about him. I put him upon cod-liver oil with fifteen drops of syrup iodide of iron after each meal. Locally I applied compound iodine ointment made with lanolin. Under this treatment, after some weeks there was a slight diminution in the size of the tumor and the general condition of the patient was considerably improved. The hardness of the tumor remained the same. I then injected into the substance of the gland five drops of compound tincture of iodine on two separate occasions at the interval of a week, but without any apparent effect upon the size or hardness of the tumor. I administered internally two grains of iodoform three times daily for several weeks, locally also using oleate of mercury, ten per cent., but without any result. I then injected the gland with three drops of Clemen's solution of bromide of arsenic. This caused some pain, which, however, soon ceased, and in about ten days I found evidences of suppuration, as in a cold abscess, without pain, redness, or swelling. I then carefully made a small puncture with a tenotomy knife and discharged about three drachms of healthy-looking pus, after which the cavity was injected with a solution of iodoform in oil until it was thoroughly distended, when what would be allowed to flow out. No poultices were applied; only a piece of absorbent cotton. The next day the opening was found closed, and, as there was some fluctuation, it was opened with the point of the hypodermic needle and a small amount of pus pressed out; the cavity was then again injected with the iodoform oil. This was done daily until the part finally healed, the discharge of pus becoming less day by day. On the third day of dressing in this manner, together with the pus, small granules of a calcareous nature were discharged. There were thirty to forty; these continued to be discharged in decreasing numbers for six or seven days, when they ceased. By this time the tumor was well-nigh gone, and there was only a slight discharge of pus. The injection of iodoform in oil was continued as long as there was a cavity to receive it, and in about three weeks from the time of opening the abscess it was healed.

The calcareous particles discharged were of various sizes and

irregular forms. The largest measured about one sixteenth of an inch in length; some of them would stick in the opening, requiring some little effort to disengage them. The greater number did not exceed one half this size. I have preserved a number of them in a phial. Several of them were thrown into dilute hydrochloric acid to dissolve out the lime, and the residue, now soft but of undiminished size, was examined under the microscope with a lens of one fifth, but no formed elements were distinguished; only an aggregation of granules, possibly the *débris* of lymph-cells, etc. There was nothing like a stroma. Neither could I discover any bacilli. After soaking in hydrochloric acid and removing the lime, I threw the specimen into a solution of carbonate of sodium to saturate the free acid; then into a solution of picrocarmin. I regret not having examined with the microscope the pus discharged in the first place for the presence of bacilli.

I would call attention to the gradual formation of the abscess, unattended with any signs of inflammation, after the arsenical injection, and to the small opening made to discharge the pus. In consequence there is scarcely any cicatrix to be observed. The daily discharge of the pus and the injection with iodoform in oil prevented the long-continued suppuration which so generally attends these cases. I had seen an ethereal solution of iodoform recommended for this purpose by French authorities, but preferred using the oil, as being less painful.

1519 JOHN STREET.

A USEFUL GALACTAGOGUE; "NUTROLACTIS."

BY ROBERT J. MILLBANK, M. D.,

VISITING PHYSICIAN TO THE NEW YORK INFANT ASYLUM.

A LITTLE over a year ago my attention was called to a combination of drugs said to be *Galega officinalis*, *Galega apolinea*, *Tephrosia virginica*, and sold under the name of "nutrolactis." The recommendations from some of those who had used it gave ground for believing that, notwithstanding my skepticism on the subject, it ought to have a fair trial. I offered to give it such a test during my service at the New York Infant Asylum, provided a sufficient quantity should be sent to the asylum at the expense of the makers, to settle the question as to its practical use.

Having had occasion to try about every galactagogue used by the profession, and having often been disappointed in the results, as many of my friends have been disappointed, I am glad to report that after more than a year's use it has been more satisfactory than any galactagogue I have hitherto employed.

I have thought it might be of interest to quote from the history books of the asylum a few cases taken in order without selection.

Lottie G., aged one year, gained half a pound in eight weeks, during which the mother took nutrolactis. The child had previously been losing weight.

Bernard R., aged eight months, wet-nursed. Nurse has been taking nutrolactis; no gain.

Edward E., aged eight months. Mother took nutrolactis for eight weeks; gain, four ounces. Has had in the mean time a severe attack of enterocolitis.

Josephine C., aged five months. Mother on nutrolactis six weeks, during which time the child gained one pound twelve ounces.

Edith C., aged five months. Mother on nutrolactis eight weeks; gain, one pound.

The following women are recorded among others as nursing two children:

Mary McM., on nutrolactis six weeks. Francis McM., aged eight months, her own child, during the above time gained twelve ounces. John S. (nurse child), aged eight months, gained two pounds twelve ounces.

Mary D., on nutrolactis eight weeks. John D., aged ten months, her own child, gained one pound eight ounces. Howard B., aged six months (nurse child), gained one pound and a half.

We have had several women whose supply of milk was insufficient, but after taking nutrolactis they have been able to nurse two children.

The women who take it all say that it positively adds to their flow of milk. As it is not particularly agreeable to take, containing little alcohol, I believe that their praise of it is not due to bias on account of palatability, and, as the facts in our tests seem to bear them out, I believe their statements. The class of mothers and children which come under our care is one to which such a medicine is peculiarly valuable, and after a year's use I am much pleased with the results.

We are now using about a dozen bottles a week. The dose is a tablespoonful two or three times daily. I hope that its use will be of benefit in the hands of some of my brethren who may be tempted to try it from what I have said about it.

154 WEST FORTY-EIGHTH STREET.

Uterine Tuberculosis.—"An interesting case of primary tubercular disease of the Fallopian tubes has occurred in Professor Lebedeff's wards. The patient, who was the widow of a man who had died of phthisis, was of a cachectic appearance and suffered from amenorrhœa. On examination, a firm, nodulated, intra-abdominal tumor was made out, situate in the space of Douglas. An attempt was made to remove the tumor, but had to be given up, as disseminated miliary tubercle was found affecting the peritonæum. The intestines and the uterine appendages, too, were all matted together. Six weeks after the attempted operation the patient died with symptoms of general tuberculosis. At the post-mortem examination miliary tuberculosis was found affecting the peritonæum, the lungs, the pleuræ, the colon, and the mucous membrane of the uterus. Both the Fallopian tubes were dilated and filled with pus, the epithelium in parts being absent. The intensity of the destructive process was greatest in the tubes, and became less marked toward the periphery. In sections, tubercle bacilli were found; there was no tuberculosis, however, in the ovaries, and only the mucous membrane of the uterus was affected."—*Lancet*.

The Ill Effects of Mouth-Breathing.—S. C. G. Watkins, in the "Ohio Journal of Dental Science," says: "I know the case of a child that has been under my care from birth. At birth and up to the third year the child had a perfectly formed and normal arch; but it acquired the habit of breathing through its mouth. The result has been that the muscles, in the effort of holding the mouth open in that way, are drawn down over the teeth, and the arch is decreasing in width and becoming narrow—so much so that you can not do more than place your finger in the center of the arch; the child is now nine years of age. There has been a radical change in the shape of the mouth, and from no other reasons than mouth-breathing and the force of these muscles on the side of the mouth."

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THE ANATOMY OF THE FUTURE.

SOME years ago an elderly professor of anatomy expressed his thankfulness that in the branch he taught there was no harassing progress. Physiology and chemistry, he said, were undergoing changes from one day to another, but anatomy was always anatomy, a bone was always a bone, and there was no wearisome struggle to keep up with the rushing progress of the times. And such is the view of anatomy entertained by many of the profession. Not a few of us think, when we look back over a number of years spent in active practice, that we started on our journey with much more baggage than was necessary in the way of memorized anatomical truths, that we could have done with a smaller quantity, but that that smaller quantity should have been better selected. We question whether the anatomy taught in our colleges to-day is the anatomy of the future. Is it not rather a result of the labor of successive generations of book-writers, each showing more eagerness to add new facts to the mass than to examine into and verify the old ones?

The anatomy of the future will not resemble that taught now. The scope of the subject requires enlarging, and for the narrowing memory work done to-day a broad view of the whole must be substituted. In other words, the student should first acquire a knowledge of general and comparative anatomy, and subsequently study its application to the human body. To begin work with the descriptive anatomy of man is working backward. Such a course has been likened to the study of an ultimate twig of a tree by a person who is ignorant of the character of the larger branches, of the trunk, and of the soil on which the tree grew.

Embryology urgently demands attention as a necessary introduction to the study of the parts of the body and as a subject the knowledge of which is of direct practical advantage in daily professional life. Observe how important has become the anatomy of the embryo in connection with the study of disease. The disposition of the layers of the embryo must be clearly understood to enable one to understand the structures of the body and the diseases developing in those structures. Studies such as these lighten the student's task. Take, for instance, the arrangement of the great vessels in the root of the neck. The disposition of these structures is learned commonly by the study of a scheme or diagram, perhaps by the friendly aid of a cunningly devised "tip." The relations of these vessels could, by the study of development, be so impressed upon the student's mind as never to be forgotten. Can any of our readers forget what a bugbear the peritonæum was? Can you put your hands on your hearts and say that you thoroughly under-

stand all about it now? And yet when the peritonæum is studied from its early and simple state there will be no longer any difficulty either in comprehending or in remembering the arrangements of its folds.

The very great advance made of late years in the study of nervous disease renders a change in anatomical teaching very necessary. In our day the anatomy of the arteries was paramount, and the nervous system occupied a position of secondary importance. Yet the nerves, their cutaneous distribution, their communications with central ganglia and with one another, are matters of daily, almost hourly, consideration in the round of a doctor's visits, while of the arteries, over which we spent such time and such labor, there is rarely occasion to think. The practitioner is constantly meeting with nervous manifestations the correct interpretation of which renders a clear knowledge of nerve distribution necessary, while it is possible for him to practice for the whole course of his natural existence without ever being called upon to tie an artery. Should such a demand be made, he will seize the bleeding point in the wound, secure it, save his patient, and then go home to study the vascular system afterward. The statement has been made, we think by the late Dr. Fothergill, that the chances of an ordinary practitioner being called upon to tie the subclavian are almost equal to those of his meeting his death by lightning stroke.

To render the study of anatomy attractive and at the same time thoroughly useful, a complete change in our present system is called for, and teachers will soon have to consider the importance of comparative anatomy and of embryology as introductory studies, and the necessity of putting the nervous system in its proper place as the most important department of the human body, and not waste their energies in teaching the relations of arteries with which the student is unlikely ever to have anything to do.

ACUTE ABSCESS OF THE TONGUE.

This affection is quite infrequent, yet it is worthy of consideration on account of the occasional rapidity of its progress and the need of prompt and intelligent treatment. In the "University Medical Magazine" for July Dr. Wharton relates the history of a case that occurred in his own practice, and appends a short account of the complaint.

A patient who had been smoking to excess asked advice concerning a painful and somewhat rigid condition of the tongue, which had come on a few days before. The organ was of normal size, covered with a whitish-yellow fur, and a little indurated, especially on the right side near the median line. He was advised to quit smoking, and a mild wash was ordered. Three days later he was suffering great pain, the tongue being swollen so that it nearly filled the mouth. Its tissues were greatly thickened, and it projected beyond the line of the teeth. There was profuse salivation, and the patient could hardly make himself understood. The sudden increase in size of the tongue had begun twenty-four hours before. Salivation was increased and difficulty of breathing occurred when he lay

down. Finding upon the indurated dorsum a spot to the right of the median line at which he thought he could feel deep fluctuation, Dr. Wharton made an incision an inch and a half long, and, thrusting in a director, struck an abscess cavity containing several drachms of thick pus. There was little bleeding, and the pain, difficulty in breathing, and obstruction to deglutition diminished at once. The slight discharge of pus ceased in a day, the induration quickly vanished, and only a little denseness about the incision remained.

Acute abscess of the tongue generally results from acute glossitis, which is said to be caused by exposure to damp and cold, to injury, and to septic inoculation, by bites or stings, by the undue use of mercury or iodine, by caustics, by eruptive diseases and fevers, by excessive smoking, and by abuse of alcoholic drinks. Dr. Wharton has himself seen it occur in delirium tremens. In one case fatal acute abscess resulted from penetration of the lower surface of the tongue by a beard of barley, which was found post mortem in a pus cavity of the size of a turkey's egg, at the root of the tongue. Acute abscess is accompanied by symptoms such as occurred in the case above described. There may be also swelling of the salivary and lymphatic glands. The abscess may open of itself or there may be sloughing of the adjacent tissues. A number of fatal cases have been reported, death coming on from dyspnoea, septicaemia, or pneumonia.

The treatment is like that for acute glossitis, consisting in free incisions into the organ to let out the pus. It may probably be prevented by incisions, when inflammation has set in and before suppuration has begun. If incision fails to relieve the dyspnoea, tracheotomy may be required, or, in very urgent cases, laryngotomy, as the easier and more rapid operation, may be done instead of tracheotomy. Bryant recommends the application of leeches to the organ when it is swollen so as to project from the mouth. He agrees that, when the swelling becomes dangerous by pressure, the oedema may be dispersed by puncture or incision, but the surgeon need not be in haste to incise unless he detects an abscess, as such incisions may lead to dangerous hæmorrhage. In case the abscess presses dangerously upon the glottis, producing suffocation, Druitt recommends an incision into it beneath the chin through the mylohyoid muscle.

MINOR PARAGRAPHS.

THE ANTHROPOLOGY OF THE GYPSIES.

In a recent number of the "Wiener klinische Wochenschrift" Dr. Hinterstoisser gives a brief notice of a monograph entitled "Die Zigeuner," by Dr. A. Weisbach, of the medical corps of the Austrian army. Dr. Weisbach has made a careful study of the peculiarities of the bodily development of fifty-two Gypsies, all soldiers in a Hungarian regiment. He refers in the beginning to the great resemblance of the Gypsies to the ancient Egyptians (from whom they profess to be descended), although their cranial formation places them closer to the very dolichocephalous Hindu. The bodily formation of these fifty-two men had been prematurely developed and exercised, as demonstrated by the employment of the measurement system. They were of the average weight and height that appertain to

the pure dark type of the Indo-European stem. The mesocephalic projection of the head was small, diminishing moderately toward the base; of the 52 men, 11 were dolichocephalous, 28 mesocephalous, and 13 brachycephalous. They had low foreheads, moderately high cheek-bones, and projecting jaws; the nose was of considerable length, well formed, with a straight dorsum, the upper portion being very small; the neck was short and thick; the thorax was of moderate depth, of slight circumference, and slightly flat; the pelvis was small, especially between the anterior superior spines of the ilia. The arms were very short. The legs were longer than the arms. The feet were broad and high, with moderate length and thickness. The precise results of the measurements are recorded in tables in the monograph.

DEATH FROM SULPHONAL.

A DEATH has been reported following the use of two fifteen-grain doses of sulphonal, the doses being given an hour and a quarter apart. The fatal result occurred forty hours after the first dose. The patient was a woman with melancholia, aged twenty-eight years. The mode of death was by apnoea. Artificial respiration was resorted to for several hours, the pulse having been good for some time after extreme cyanosis had set in. As antidotes there were used the faradaic current, atropine, strychnine, ammonia, and alcohol. The case is reported in the "Medical News" for August 10th, by Dr. R. R. Pettit, of Dayton, Ohio.

THE ABERDEEN CHAIR OF ANATOMY.

The "British Medical Journal" states that the generous action of Professor Struthers at the Aberdeen University on the opening day of the anatomical course, in offering to continue his lectures until his successor should appear, was a fortunate concession to the school, for otherwise "chaos must have reigned." The delay since the resignation of Professor Struthers, on the part of the governors of the corporation, to name his successor has not been on account of any lack of candidates for the position, but rather by reason of a difficulty in deciding between many of nearly equal eligibility.

ANTIPYRINE IN WHOOPING-COUGH.

THE efficacy of antipyrine in whooping-cough has been denied of late by a number of observers. Its use has even been found to be attended with more or less danger. The "Montreal Medical Journal" sums up a careful review of a number of articles with the conclusion that the drug is practically inoperative and even injurious in this affection; and that it should always be given with caution, especially to children, when a continuous action is desired. In twenty-eight cases treated by physicians of Vienna, the duration averaged fifty days, the drug being given in doses ranging from five to thirty grains per diem.

SPECTACLES AND EYE-GLASSES.

DR. CHARLES GEORGE BULL, formerly a practitioner of New York, but now one of the faculty of the McGill Medical College, Montreal, has quite recently taken a supplementary degree at Paris. His inaugural thesis has been published in book form, with an introduction by Dr. Javal. His subject was the choice of means for the correction of visual errors, and the title of his book is "Spectacles and Eye-glasses." The Paris correspondent of the "Lancet" speaks of Dr. Bull as having been an especially favored pupil of Javal's at the Sorbonne. Myopia, according to Dr. Bull, is seldom congenital, but is developed dur-

ing early life because of an uncorrected astigmatism which leads to the habit of reading and writing at too short a distance.

A SUIT BY A PHYSICIAN AGAINST A BOARD OF HEALTH.

DR. DUNCAN, of Brooklyn, formerly surgeon to the steamship Colon, has brought suit against that city for an alleged causeless removal from his home to the Quarantine Hospital by order of the Health Commissioner. He demands \$60,000 damages. He accuses the health officials of incompetency, harshness, and cruelty in affecting his removal when he was sick with remittent fever, whereas the disease was reported by the said officials to be yellow fever.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 12, 1889:

DISEASES.	Week ending Nov. 4.		Week ending Nov. 12.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	32	9	40	6
Scarlet fever.....	35	1	60	2
Cerebro-spinal meningitis....	2	2	3	3
Measles.....	13	1	46	6
Diphtheria.....	74	16	89	26

Leprosy in Kings County.—A leprous Chinaman, who has for some time been an inmate of the Kings County Hospital, has been discharged in order that he may be returned to China.

A Grant to the International Medical Congress of 1890.—The Imperial Ministry of Germany has made a grant of 80,000 marks (\$20,000) in aid of the Tenth International Medical Congress, to be held in Berlin next year.

A New Brooklyn Dispensary.—A new dispensary was opened in Brooklyn on November 11th, at the corner of Prospect and Sixth Avenues.

The Johns Hopkins Hospital "Bulletin."—The Trustees of the Johns Hopkins Hospital have authorized the issue of a monthly publication to be known as the "Hospital Bulletin." The first number will be dated November of this year. Nine numbers will appear each year.

The New York Academy of Medicine.—At the annual meeting, to be held on the 21st inst., the annual address will be read by Dr. William M. Polk, on "The Relation of Medicine to Some of the Questions of the Day." The meeting will be open to the general public.

The College of Physicians and Surgeons.—We learn that Dr. T. Gaillard Thomas has resigned his clinical chair, and that he will be succeeded by Dr. George M. Tuttle. It is stated that Dr. Thomas will give six didactic lectures a year. A chair of nervous diseases has been established, with Dr. M. Allen Starr as the incumbent.

Changes of Address.—Mr. Reginald Harrison (London, England), to No. 6 Lower Berkeley Street, West; Dr. Charles A. Powers, to No. 35 West Thirty-fifth Street.

The late Dr. Isaac E. Taylor.—The faculty of the Bellevue Hospital Medical College has taken action expressed as follows:

"The faculty of the Bellevue Hospital Medical College have the peculiarly painful duty of directing a record in their minutes of the death of their first and only president, the late Dr.

Isaac E. Taylor. His invaluable services in the organization of the college and his unflagging interest in its progress and success need not be recorded here. The same may be said of his contributions to medical science and of his labors in the various medical organizations of this city and State. His refined, gentle, and kindly nature endeared him to all, and especially to those associated with him in the Bellevue Hospital Medical College; while his lovable personal qualities protected him from the enmities which too often attend professional success."

[Signed.] AUSTIN FLINT, *Secretary.*

At a meeting of the New York Obstetrical Society, held November 5th, the following was unanimously adopted:

"Resolved, That the members of this society have learned with deep regret of the death of Dr. Isaac E. Taylor, one of its most distinguished fellows. It is their wish to express here their high appreciation of his purity of character, his enthusiasm in promoting obstetric science, his lofty ideals, the kindness of his nature, his self-sacrificing disposition, and his warm-hearted benevolence. In recalling his life and character, it is pleasant to remember that the deeds of good men live after them."

[Signed.] FORDYCE BARKER, M. D., }
WILLIAM T. LUSK, M. D., } *Committee.*
WILLIAM M. POLK, M. D., }

The Council of the New York State Medical Association sadly records its unfeigned sorrow for the loss of a valued founder, fellow, and late president, endeared by his personal qualities as he was admired for his scientific attainments.

An illustrious name is transferred from the active list to the roll of honor of those who have bravely borne themselves in the foremost rank, and fallen triumphant.

Untiring in industry, wise in counsel, affectionate in friendship, steadfast in religious faith, beloved by his associates, and revered by the profession which acknowledged him as one of its leaders, Isaac E. Taylor lived an example for emulation by his survivors and successors, and rests from his labor, leaving a reputation unassailed by enmity and beyond the reach of jealousy.

By the Council, { JOHN G. ORTON, M. D., *President,*
E. D. FERGUSON, M. D., *Secretary.*

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 3 to November 9, 1889:*

O'REILLY, ROBERT M., Major and Surgeon, will, by direction of the Secretary of War, at the expiration of his present leave of absence, proceed to Fort Logan, Colorado, and report in person to the commanding officer of that post for duty. Par. 6, S. O. 256, A. G. O., November 2, 1889.

MERRILL, JAMES C., Captain and Assistant Surgeon, is relieved from duty at Frankford Arsenal, Pa., and ordered to duty at Fort Reno, Indian Territory. Par. 6, S. O. 256, A. G. O., November 2, 1889.

BLACK, CHARLES S., Captain and Assistant Surgeon, is relieved from duty at Fort Sidney, Nebraska, to take effect upon the expiration of his present leave of absence, and will report in person to the commanding officer, Fort Du Chesne, Utah. Par. 6, S. O. 256, A. G. O., Washington, November 2, 1889.

JOHNSON, R. W., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect on or about November 10th proximo. Par. 4, S. O. 110, Department of Arizona, Los Angeles, Cal., October 29, 1889.

POWELL, JUNIUS L., Captain and Assistant Surgeon, is granted leave of absence for two months on account of sickness, by direction of the Secretary of War, with permission to leave the Division of the Missouri. Par. 2, S. O. 258, A. G. O., Washington, November 5, 1889.

IVES, F. J., First Lieutenant and Assistant Surgeon, is granted two months' leave of absence. Par. 3, S. O. 256, A. G. O., November 2, 1889.

By direction of the Secretary of War, the following assignments of officers of the Medical Department (recently appointed) are ordered:

WILCOX, CHARLES, First Lieutenant and Assistant Surgeon, will report to the commanding officer at Fort Columbus, N. Y., for duty at that station.

MOVAY, HARLAN E., First Lieutenant and Assistant Surgeon, now at Fort Mackinaw, Michigan, will report in person to the commanding officer of that post for duty.

FRICK, EUOLD B., First Lieutenant and Assistant Surgeon, will proceed from Philadelphia, Pa., to Fort Keogh, Montana, for duty at that station.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the week ending November 9, 1889:*

MACKIE, B. F., Surgeon, and PICKRELL, GEORGE MoC., Assistant Surgeon. Detached from the U. S. Steamer Ossipee, and placed on waiting orders.

Marine-Hospital Service.—*Official List of Changes of Stations and Duties of Medical Officers of the United States Marine-Hospital Service for the three weeks ending November 9, 1889:*

PURVIANCE, GEORGE, Surgeon. Granted leave of absence for twenty-one days. November 8, 1889.

AUSTIN, H. W., Surgeon. To inspect unserviceable property at St. Louis Marine Hospital. November 4, 1889.

GASSAWAY, J. M., Surgeon. Relieved from duty at New Orleans, La.; to rejoin station at Cairo, Ill. October 23, 1889.

BANKS, C. E., Passed Assistant Surgeon. Granted leave of absence for thirty days. October 28, 1889.

STONER, J. B., Assistant Surgeon. Ordered to Vineyard Haven, Mass., for temporary duty. November 6, 1889.

CONDIOT, A. W., Assistant Surgeon. Ordered to Cairo, Ill., for temporary duty. November 4, 1889.

GUITÉRAS, G. M., Assistant Surgeon. Ordered to Washington, D. C., for temporary duty. November 8, 1889.

GROENEVELT, J. F., Assistant Surgeon. Ordered to New York, N. Y., for temporary duty. November 5, 1889.

Society Meetings for the Coming Week:

MONDAY, *November 18th*: New York Academy of Medicine (Section in Ophthalmology and Otology); New York County Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, *November 19th*: New York Academy of Medicine (Section in Theory and Practice of Medicine); New York Obstetrical Society (private); Medical Association of Central New York (semi-annual, Syracuse); Medical Societies of the Counties of Kings and Westchester, N. Y.; Ogdensburg, N. Y., Medical Association; Baltimore Academy of Medicine.

WEDNESDAY, *November 20th*: Harlem Medical Association of the City of New York; Northwestern Medical and Surgical Society of New York (private); New Jersey Academy of Medicine (Newark).

THURSDAY, *November 21st*: New York Academy of Medicine (annual); Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement (private).

FRIDAY, *November 22d*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.

SATURDAY, *November 23d*: New York Medical and Surgical Society (private).

Letters to the Editor.

VAGUE CAUSES OF INFANT MORTALITY.

NEW YORK, *November 4, 1889.*

To the Editor of the New York Medical Journal:

SIR: In the Journal of November 2d you seem to be a little severe toward the physicians of this city as regards the certification of causes of death in children. It is often impossible to state, even after a careful autopsy, why a child should have wasted away and died. In many cases there are probably congenital defects of a very obscure kind, not at present discernible by us, which render it impossible for the infant to maintain life independently, for children will simply waste away, notwithstanding the best of care and food, including mother's milk. In some cases the wasting may be due to tuberculosis, but I have been informed that in the New York Foundling Asylum, where 500 babies die every year, and autopsies are frequent, the cases of so-called marasmus seldom show any evident cause of death other than the lack of nutrition, which was just as plain before the autopsy as after. What better cause can be given in such cases than marasmus, atrophy, or inanition?

It seems to me that to return a certificate of an infant's death, when the cause has been given as marasmus, would only exasperate the doctor, and procure no additional information. If such a course were persisted in, marasmus, atrophy, etc., would undoubtedly disappear from our mortality reports, but the causes given in place of them would be mere guesswork, and would vitiate the figures of other diseases to which they were referred. It is much better, if the doctor does not know the cause of death, to have him say so plainly, using terms that other doctors understand. To a statistician, a precise mortality report, in which there were no ill-defined causes of death, would be, on its face, suspicious.

To show that our physicians are not more liable than others to report causes of this kind, I subjoin corresponding figures from other large cities. In Berlin all physicians are presumed (by us here) to be thoroughly educated and competent to make a diagnosis in any case.

In Berlin, in 1885, (the latest full report at hand), out of 16,828 deaths of children under five years of age, there were due to *Lebensschwäche* (lack of vitality), 1,688; *Kinderschwind-sucht* (marasmus), 181; *Erschöpfung* (debility), 894; and to *unbestimmte Todesursachen* (ill-defined causes of death), 133. Total, 2,896, or 17.21 per cent. of the whole number.

In Paris, in 1888, out of 14,909 deaths of children under five years of age, there were due to *débilité congénitale, ictere* et sclerème** (congenital debility, icterus, and sclerema), 1,303; to *mort subite* (sudden death), 14; to *épuisement, cachexie* (exhaustion, cachexia), 3; and to *causes inconnues ou non-spécifiées* (unknown or not specified causes), 80. Total, 1,400, or 9.39 per cent. of the whole.

In London, out of 34,426 deaths of children under five years of age, there were due to premature birth, 2,025; to debility, atrophy, inanition, 2,809; and to other ill-defined and not specified causes, 45. Total, 4,879, or 14.17 per cent. of total.

In New York, in 1888, out of 17,358 deaths of children under five years of age, there were due to premature birth, 670; to debility, 114; and to inanition, marasmus, atrophy, 1,134. Total, 1,918, or 11.05 per cent. of the whole.

If deaths from *Lebensschwäche* and premature birth are omitted from the totals, we have for Berlin, London, and New

* Generally a very small number.

York, respectively, 1,208, 2,854, and 1,248 deaths from indeterminate causes, or 7·18, 8·29, and 7·19 per cent. of the respective totals. Very respectfully,

ROGER S. TRACY, M. D.

ARSENIC IN WAR-PAINT.

NEW YORK, November 4, 1889.

To the Editor of the New York Medical Journal:

SIR: As an illustration of the manner in which some of our old wheel-horses will sometimes kick over the traces, permit me to cite the case of a patient with chronic eczema that came to my office September 14, 1889. I prescribed—

℞ Acidi arseniosi..... gr. j;
 Ferri redacti, }
 Mangani oxidi, }āā gr. xij.

Misce et fiat massa in pilulas duodecem dividenda et sig.:
 One pill after each meal.

This treatment was continued with most happy results for four weeks, at the end of which time my patient was practically cured. He had a few pills left, and I advised him to finish them, and dismissed the case. The next evening, at ten, I was hurriedly sent for, and, hastening to the house, found my patient suffering from severe gastric spasms, without any other concomitant symptoms of arsenical poisoning. On the plea of stomach derangement I prescribed again, and ordered a discontinuance of the pills for two days, at the end of which time another one was taken with precisely similar results. I was surprised, not daring to impeach the compounder, who was an exceptionally careful pharmacist, and, abstracting a few of the pills, took one myself without any subjective symptom. In an hour I took two of the pills, without any apparent result, and, in the light of this experience as well as others before, have come to conclude that arsenic in each case of exhibition makes its own clinical therapeutic history.

J. R. PARKE, M. D.

Proceedings of Societies.

AMERICAN DERMATOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Boston, on Tuesday, Wednesday, and Thursday, September 17, 18, and 19, 1889.

The President, Dr. I. E. GRAHAM, of Toronto, in the Chair.

(Concluded from page 502.)

Dermatitis Papillaris.—Dr. L. HEITZMAN, of New York, read a paper on this subject in which he said that benign tumors would not recur after extirpation; but there were many cases where tumors which were proved both clinically and microscopically to be non-malignant began to recur after their removal, sometimes assuming a larger size than the original. Such tumors were known to the surgeon as recurrent fibroids. A simple fibroma might gradually change into sarcoma during the course of a series of operations for its removal. Sometimes the growths commonly called moles would recur after their removal in the shape of scars, which were generally called spurious keloid. In a patient of Dr. Nicolai's, the application of green soap had caused the growth of large, branching hard scars over the chest. On some people every wound of the skin would be followed by such a growth. Such a condition might follow an eruption of acne pustules; and such growths had been termed by Kaposi dermatitis papillaris. A negro, who had slept on a pillow filled with horse-hair, had developed such growths upon

the neck and occiput. In another case, that of a Hebrew gentleman, constant picking of a few acne pustules had been the starting point of the disease. Kaposi considered the disease a primary one, but the author thought it secondary to the irritation arising either from an acne or from a sycosis. This view agreed with the opinion of Hebra, who had called it sycosis frambesiiformis.

What the cause was we did not know. Von Recklinghausen thought it followed the distribution of the nerves. In the experience of the author this had not been true. It seemed to depend on a peculiar activity of the skin which enabled it to respond to moderate irritation. It was most common in negroes, in whom pricking of the lobes of the ears might be followed by such a growth. The Hebrew race was also prone to the formation of this recurrent fibroma. It was composed of interlacing bundles of fibrous tissue, with a large amount of protoplasm or medullary corpuscles between the bundles. Sometimes the latter became so great that it was called myxo-fibroma. The larger the amount of this free substance, the more rapid the growth of the tumor. We also met with indifferent corpuscles or medullary corpuscles, which pointed to rapid growth of tissue. From a pathological standpoint the recurrent fibromata were allied to keloid and dermatitis papillaris. The papillary character was of secondary importance, depending on the regular distribution of the blood-vessels in the superficial layers of the cutis. Treatment was tedious. Caustics, cutting, and the hot iron were forbidden; they would aggravate the disease. Nitric acid might be applied cautiously. The history of one case, in which an operation had been done in Vienna, was related; the result had been a great increase in the size and number of the growths. A three-per-cent. solution of salicylic acid seemed to promise as well as anything.

Dr. Fox had seen one of the cases of which Dr. Heitzman had spoken. The patient had refused operation, and electrolysis had been tried, great care being taken not to produce ulceration. Progress had been very slow, but a portion of the growth had been reduced to a level with the skin. Then the patient had disappeared until last spring, when he had appeared with the story that he had been operated upon in Vienna, and at that time he presented tumors considerably larger than when he had been under treatment before. Since that time the speaker had treated an almost identical case occurring in a colored man. A study of this case had led him to believe that, with the exception of its occurrence in the follicles, its occurrence in this particular locality, and perhaps its greater vascularity and tendency to suppuration, there was no difference clinically between this disease and keloid. It had occurred to him that the occurrence of keloid on the sternum might have had something to do with the hair-follicles there. He would question the exactness of making a distinction between true and false keloid; the history of the presence or absence of injury could not always be depended upon. In cases of spurious keloid the speaker had seen excellent results from scarification and the application of acetic acid.

Dr. ZEISLER protested against the view that the disease as described by Kaposi was not a distinct affection. In the case mentioned, even though there had been a resemblance to keloid, which he would not admit, there had been such prominent clinical features, such as the occurrence upon the occiput and the peculiar growths of the tufts of hair, that we had no right to throw over the diagnosis of Kaposi. Pure nitric acid in one case of keloid upon the cheek had caused its entire disappearance without disfigurement.

Dr. GREENOUGH mentioned a case where a number of keloidal growths had appeared upon the sternum after the application of croton-oil in the treatment of a cough.

Dr. KLOTZ would use salicylic acid in strength as high as ten per cent.; with it he had caused the disappearance of keloid in one case.

Dr. JACKSON, in a case of keloid upon the cheek, had tried salicylic acid, hydronaphthol plaster, mercurial plaster, and finally scraping. The hypertrophic scar which followed had not been removed by the use of scarification and acetic acid.

Dr. DENSLow had tried electrolysis for a period of several months in one of these cases, but without result.

The PRESIDENT had watched with much interest for several years a case where he had observed from time to time keloidal growths appear upon the face, following a sycosis. The same patient had had a keloidal growth upon the leg, at the scar of an old bullet wound. He had not dared to operate in the face of the emphatic advice of Kaposi.

Dr. HEITZMAN said that pathologically there was not much difference between the lesions of dermatitis papillaris and those of keloid, although clinically they might differ.

Dr. FOX protested against the great multiplication of names in dermatology. It seemed to him that the term keloid of the occiput answered the purpose perfectly well.

Clinical Notes on Sycosis Capillitii.—Dr. ZEISLER read a paper on this subject. He had found very little said about the disease in the different text-books. In a case reported by Hebra, in the "Vierteljahrsschrift" in 1876, it had been said that the skin had been somewhat elevated and sclerotic, so that a fold of it could not be pinched up. There were small nodules and pustules, perforated by hairs, generally in bunches of ten or twenty, and the epilation of these hairs was almost impossible. Two cases that he had seen were of especial interest in relation to the last paper read on dermatitis papillaris. In one of the cases there had been abscesses on the scalp for six months. The sores left after the healing of these abscesses, which had been opened, had not been linear, but raised and thickened on each side. Tufts of hair had been very prominent, and at these points the patient had complained of an itching sensation. Depilation, with shaving of the head and antiseptic lotions, had been used, and the scalp had been entirely free in about three months, although there had been slight recurrences. A second case presented similar features. In each one of these patients he had noticed that the hair upon the scalp had been very thick. This recalled Wirtheim's explanation of the cause of sycosis—viz., that it was a disproportion between the diameter of the hair and the follicle, resulting in pressure. Although this might be a predisposing cause, yet the reader believed that it was the entrance of the *Staphylococcus aureus* and *albus* which caused the affection. It was therefore a local disease, and constitutional remedies were not indicated.

Dr. ROBINSON explained the meager literature that had been found by the reader by the fact that the name had been stricken from the list at the first meeting of the association and had not been put back until three or four years ago. He did not agree at all with Wirtheim's view. When we had pustules form they were, of course, due to organisms, but many lesions occurred which were not pustules. In the pustules of acne you got the same organisms. In every case there was a predisposing cause. The best treatment was to render the soil uncomfortable for the organisms by the use of constitutional remedies.

Dr. BULKLEY had seen cases in young men which he had put down as folliculitis of the scalp, where papules or pustules were formed. In these cases a permanent baldness of the spot affected had remained. One case had been cured finally; in a second case the treatment had been neglected, and the patient seemed to be growing worse. In both these cases he was sure there was a constitutional cause.

Dr. FOX referred to the case that he had published in the

first edition of his photographic illustrations, where the hair grew in large tufts upon the surface of a keloid in a colored man.

Dr. DENSLow reported a case where small nodules had appeared deep in the scalp very much like those which were seen in deep-seated acne, and accompanied with burning and itching; they had been opened, a small sore had been formed, and the hair had been lost. As a young man this patient had had a very severe attack of acne, especially upon the shoulders. In this patient it was noticed that the mouths of the follicles upon the face were patent. It was discovered afterward that he had a stricture at the meatus, and the urethra was in a highly sensitive condition. Under the combined treatment there had been no recurrence.

Dr. HEITZMAN thought the diseases which had been mentioned could all be classed together, and he preferred the name folliculitis, as used by Dr. Bulkley. In some of the cases we had atrophy and sometimes we had hypertrophy.

Dr. ROBINSON thought the names were used according to the location, and the fact that the cause was the same had nothing to do with it. The case was comparable to that of broncho-pneumonia and bronchitis, which were separate diseases, although the cause was undoubtedly the same. In sycosis, or eczema, or acne the cause was the same, but the seat was different and the clinical history was different.

The PRESIDENT had had an experience in one case which had led him to believe that the disease was not local simply. The case had been one of sycosis. A typhoid fever had come on, and during its run the sycosis had disappeared, only to return again after the fever had abated.

Dr. ZEISLER replied that it had long since been established by Hebra that during fevers many local diseases were arrested temporarily.

Relapse of Pemphigus Foliaceus after Eleven Years' Quiescence.—Dr. SHERWELL reported an instance of this sort. The case had been reported in the "Archives of Dermatology" for 1877, and also in 1878 before the American Dermatological Association. The treatment in the first instance and in the relapse had been mildly protective. The patient had recovered, and had been entirely well until March of the present year. She was now twenty years of age and healthy. At the beginning of the attack there had been general febrile disturbance, anorexia, chill, and irregularity of the bowels. The eruption had commenced as an erythema over the front of the chest and arms, followed by the appearance of vesicles with the peculiar sour-milk-like contents. The temperature had been 102.7°; pulse, 115. The eruption had spread rapidly over the entire body. She had recovered entirely within three weeks. Dr. FOX, who had seen the case at one stage, had remarked that it looked like a case of pityriasis rubra.

Impetigo Herpetiformis.—Dr. SHERWELL also reported the history of a case of this disease. The patient was Miss K., aged thirty-two, under the care of Dr. Risch, of Brooklyn. She had had five living children and several miscarriages. In 1884 she had had a slight eruption, consisting of small bullæ, which had become puriform. In the summer of 1888, when three months pregnant, she had suffered with gastric disturbances, and about October 1st she had first noticed an eruption similar to the one she had had before. At that time it had resembled scabies very much, but did not get well under treatment. Crusts, looking like impetiginous eczema, had formed, and the nervous system had become a good deal affected, there being a constant tremor of the limbs. Dilute hydrocyanic acid had been used as a dressing with benefit, but in November another relapse had occurred. When seen on November 23d she was in a pitiable condition, moving the limbs with uncertainty

and difficulty. Pulse weak; temperature elevated. The eruption was of the small impetiginous variety, apparently spreading in somewhat of a wavy line, and the diagnosis of impetigo herpetiformis was made upon that observation. Arsenic was administered. On December 23d she gave birth to a non-viable child. After this numerous relapses of the eruption occurred until the middle of June, at which time she was free, and had remained so ever since. The writer believed that all these cases were due to absorption of suppurating and effete matter. One case had occurred during an attack of diphtheria, and, if it had been chronic, would have been considered a case of this kind. It had been reported that Dr. Duhring had given up his idea that this disease belonged to the group of dermatitis herpetiformis, and if it were so the reader was sorry, for he believed that that view was the correct one.

Dr. HEITZMAN said that Kaposi had criticised him for reporting a case of this disease because the woman in whom it had occurred had not been pregnant; but it happened afterward that a man came to the clinic in whom Kaposi himself had been obliged to make the same diagnosis.

Dr. BULKLEY, referring to a remark made by the speaker, said that this disease was not at all like the cases which he had reported under the name of herpes gestationis, differing in the character of the lesions, in the absence of lines or gyri, and in the fact that it was never fatal. It seemed to him that this was a disease *sui generis*.

Dr. ROBINSON preferred the term hydroa for this class of diseases.

Dr. HARDAWAY reported a case of pemphigus foliaceus in a gentleman sixty years of age, beginning on the chest, making slow progress for the first few months, and then progressing rapidly until the whole cutaneous surface was invaded. The speaker had had at the same time under observation a case of pityriasis rubra, and there had been a period in the history of the two cases when they had looked absolutely alike—a fact which, to his mind, gave a good deal of color to the idea that they were one and the same disease, representing different processes of the same trouble.

A Rare Form of Skin Disease.—Dr. BRONSON, of New York, read an account of a case. The patient was a boy of fourteen, seen at Charity Hospital. He had had a swelling of the forehead, eyes, and mouth, with the formation of scales and crusts over the cheeks. There had been papules, tubercles, pustules, and incrustated ulcerations over the face, and also rounded or irregular cicatrices on various portions of the face, the scalp being free. The cervical glands had been slightly enlarged. Scattered over the trunk and extremities had been lesions similar to those upon the face, while between the patches the skin had remained for the most part normal. Considerable pus could be obtained from the ulcers. The primary lesion had seemed to be a pustule or papule, the disease first affecting the hair-follicles. This might undergo ulceration, leaving a slight papule, or a pustule might form. A year and a half ago a sore had come upon the right ear, and about the same time an abscess had come upon the neck, resulting from a suppurating lymph-gland. He had been working at that time in a paper manufactory. General health good; urine negative. After two months the ulcers had been healed, and the swelling of the face had been less. He had been discharged from the hospital, but a little later had been looked up, and had been found to be in St. Francis Hospital in Jersey City. At this time the eyelids had been enormously swollen, forming a fold above the eyebrows. Primarily the disease seemed to have been an acne, and the only diagnosis that the reader could make was acne cachecticorum. It had been at first thought that there might have been arsenic in the paper in which he had been working, but on investiga-

tion that view had to be given up. But, even if it had been so, we would suppose that the eruption would have disappeared after the removal of the exciting cause. There was no appearance or history of syphilis. The œdema of the face was hard to account for, but probably there was a local cause, perhaps the presence of confined pus in the deeper parts of the skin.

Dr. SHERWELL thought that dermatitis necrogenica would be a good title, on account of the absorption of necrobiotic elements, which were having an action upon the nervous system.

Dr. MORROW had seen the case, and thought it resembled most nearly cases of arsenic poisoning that he had seen. While not entirely satisfied with Dr. Bronson's diagnosis, he could not suggest a better one.

Dr. BRONSON was willing to accept the diagnosis of dermatitis herpetiformis if there was such a disease. One of the important features was the distribution of the eruption, which was similar to that of dermatitis herpetiformis, showing that the same pathological motive was present, and yet the clinical disease ran a very different course from that of Duhring. It seemed to him that the fact of the relapse occurring was sufficient to indicate that it was not arsenical.

A Case of Urticaria Pigmentosa.—The secretary read a paper by Dr. H. W. STELWAGON, of Philadelphia, on this subject. The objective symptoms were almost always the same in the cases classed under this head, and midway cases between this type and the ordinary urticaria were rarely seen. It would almost appear that this was a peculiar disease by itself. The case reported had occurred in a boy of six, who had had a good personal and family history. The disease had begun at eight months, after two unsuccessful attempts at vaccination. The eruptions had been most abundant upon the covered portions of the body at first, but later there had been a disposition for them to appear upon the face. The disease had been present constantly since its first appearance, the older lesions disappearing without leaving a trace. The eruption had consisted of rounded, elongated, reddish papules, sometimes surmounted by a small vesicle, varying from the size of a pin-head to that of a large pea: there had been also small, flattened, yellowish lesions, of the size of a pea, and of a salmon-color, and other spots, where recovery had seemed to be taking place, with nearly normal skin, slightly atrophied and pigmented. The first appearance of the lesion had been not unlike that of the wheal of urticaria, but smaller and less inflamed. The itching had been slight. No other lesions than these had been found at any time. The changes from the beginning of the eruption until the disappearance of the lesion would require weeks or months. The treatment had been without influence.

Dr. FOX had an impression that the disease was not correctly named, although he could not suggest a suitable term for it at the present time. It seemed to him that the pigmented lesions were the essential features of the disease, and that the urticarial element was secondary. It would be interesting in these cases to note the condition of the skin after a series of years, in adult life.

Dr. HEITZMAN did not agree with the last speaker. He thought we should not lay too much stress upon the presence of pigment. He would admit that there was a trophic neurosis leading to the œdema, which went deep down to the subcutaneous tissue. In the ordinary cases there was œdematous infiltration, without extravasation, and then we had the whitish color. But if there was stagnation, with exudation of blood, then we had blood-corpuscles mixed with the œdematous liquids. It seemed to be the same as ordinary urticaria, plus hemorrhage into the wheals.

Dr. FOX did not mean that the pigment was characteristic, but that the lesions were not of the nature of an urticaria. The

pigment was a fact of minor importance. There was simply an urticarial element associated with the lesions.

Dr. TAYLOR had seen a child, twelve years of age, who had suffered with this disease until the sixth year. At the time of the observation she had had the appearance as though she had an intense erythematous syphilide.

Dermatological Hints.—Dr. HARDAWAY, of St. Louis, read a paper thus entitled.

1. *Spontaneous Involution of Sarcoma.*—He had reported the case in 1882; it had been an alveolar pigmented sarcoma of the skin. The face, hands, and feet had been affected, and there had been swelling of the lymphatic glands. At that time the disease had existed eight or ten years. In 1884 a number of deposits had occurred on the hands and feet. A recent inspection, fifteen years after the beginning of the process, had shown that the disease was arrested. The tumors had all gone, leaving an atrophic condition of the skin. The patient had never received treatment. At about the same time another case of fibro-sarcoma had been reported, the patient had been put upon arsenic, and had died within six months, having been sick two years.

2. *Disappearance of an Extensive Eruption of Xanthoma.*—A paper had been read in relation to the case in 1884. All parts of the body had been affected. Since that time there had been a gradual involution of the disorder. In four years from the time of the observation the lesions had undergone complete involution, though the bronzed hue still remained. The patient had received no treatment whatever.

3. *Case of Bullous Eruption in a Child.*—The patient, eleven years old, had had measles four years before, and the present eruption had come on a month after recovery from that disease. The skin had been elevated and reddened. Often whole areas of sound skin would be surrounded by the bullæ. Under the use of arsenic the intervals between the attacks had been materially increased, and such lesions as made their appearance had been more or less aborted.

Dr. HEITZMAN remembered the case of sarcoma. He recollected that he had predicted that the course of the disease would be a slow one, on the ground that the pigment had been diffused and not granular. He had read of one case of sarcoma in the tonsil of a child where recovery had taken place spontaneously.

Dr. GREENOUGH asked how Dr. Hardaway would exclude chronic relapsing urticaria.

Dr. HARDAWAY replied that there had been no pruritus in the case.

Dr. TAYLOR spoke of a case where bullæ had appeared in large numbers and in the shape of most perfect rhombs and parallelograms. At first it had been thought the patient must have caused them herself, but that source had been excluded.

Dr. BRONSON called attention to the instances of intense neuralgic pain sometimes accompanying sarcoma of the skin. In one case the lesions had been upon the face and extremities especially, and had occurred in the form of very superficial, somewhat tough lesions, the largest having an area of an inch and varying in color from reddish to deep purple. The pain had been the most prominent feature. There had been no evidence of the growth of tumors in the inside of the body. The patient had finally died, apparently of exhaustion. No autopsy had been permitted. The observation had been made that these cases of pigmented sarcoma of the skin were most common in Hebrews. It would be an interesting point to settle.

Dr. BULKLEY thought this would be a proper subject for one of the regular meetings of the association. He thought, with Dr. Greenough, that a good name for these cases of hydroa and dermatitis herpetiformis would be chronic urticaria, with tendency to vesication.

The PRESIDENT here read the histological report of the case of herpes zoster that he had reported on the first day of the meeting, and exhibited specimens under the microscope. It was found that the ganglia were extensively invaded by leucocytes, some of the latter having taken the place of the destroyed nerve-cells. In this case it seemed as if the diplococcus was the irritant element. No inflammatory processes were found in the pons, medulla, or cerebellum from the same subject.

Dr. HEITZMAN said that the fact that the ganglion cells were affected in this disease had been known for twenty-five years, but now it was interesting to find micrococci in the ganglia, and perhaps that meant that we should find the real cause of the disease. It seemed to him that the bacteria shown were a new variety. He hoped the next opportunity for such study would be improved, and, if possible, cultivations made from the tissues.

On the Alleged Tolerance of the Iodides in Syphilis.—A paper with this title was read by the secretary, in the absence of the author, Dr. STELWAGON. The author would deny the statement made by Dr. H. C. Wood, that there was a toleration of the iodides in the case of patients who were affected with syphilitic lesions. Perhaps there might be a certain ground for the belief in the case of those who had cerebral syphilis, but if it were so it was not on account of the specific effect of the disease, but because the central nervous system was the part affected, and a similar lesion from any other cause would have a similar result. The writer gave briefly the history of five cases of syphilitic skin disease, in which the assertion was certainly not true. Moreover, in investigating the influence of the iodides in psoriasis he had found cases that had borne the remedy quite as well as any cases of syphilis could have done.

Dr. TAYLOR thought the statement of Dr. Wood had been thoroughly disproved by Dr. White. There was no difference in this respect between the syphilitics and non-syphilitics. The speaker thought that we were inclined often to weaken in giving the drug in the cutaneous cases, whereas we pushed it more strongly in the nervous cases, under the view that the case was a desperate one. Sometimes there would be a toxic effect at one time, and none at all at another. It seemed to him that many of the cases that Dr. Wood had treated had gone through the stage of acclimatization, so to speak.

Dr. GREENOUGH referred to the fact that sometimes patients who could not take small doses would bear larger ones perfectly well.

Dr. TAYLOR, in reference to this point, recalled the case that he had reported a year ago, and said that the eruption had been brought on at the very beginning of the treatment, but the iodide had had to be continued, on account of the patient's general condition, and after a time he could take two or three drachms without any influence upon his eruption, or any inconvenience.

Dr. DENSLOW mentioned the case of a man who had had undoubted syphilis, and who had been laid up sick in bed every time the smallest amount of iodide had been given him.

Dr. BULKLEY spoke of the value of giving arsenic in connection with the iodide. He had reached as high as ten drops of Fowler's solution.

Dr. TAYLOR did not believe the arsenic did any good where the iodide caused coryza; but where there was a disturbance in the skin, with a tendency to form dermal lesions, the arsenic, he thought, would hold the inflammatory condition in check. And yet it would fail utterly in some cases.

Dr. FOX asked the effect upon the action of the bromides.

Dr. HARDAWAY had seen it tried in a good many cases, and had never seen good effects.

Dr. FOX believed that the bromine and iodine might produce lesions one week and be taken without trouble the next,

so that he was coming to believe that all supposed effects of arsenic, at least in the case of bromine, were simple cases of coincidence.

Dr. BRONSON spoke of the fact that the acne in bromism was more aggravated than in iodism, as perhaps having a bearing in the case.

Dr. TILDEN exhibited a boy, of whom mention had been made in reference to prurigo, and he was examined by the members of the association.

Dr. BRONSON was fully convinced of the diagnosis. In his mind the essential feature was the neurosis affecting the particular portions of the skin.

Dr. FOX agreed to the diagnosis. In his mind there was a doubt as to the propriety of separating the disease prurigo from chronic papular eczema. The history of the case, however, separated it from eczema, since the latter tended to get well sooner or later without treatment.

Dr. ALLEN remarked that the diagnosis might almost be made from the peculiar pallor of the face which was present in this case. In a patient that he had under observation the body had been covered with molluscum tumors, which seemed to have developed upon the prurigo base from the scratching.

Dr. BULKLEY was ready to admit that perhaps American dermatologists had been too prone to place some of these cases under the head of eczema. It would be better, perhaps, to call some of them by this name.

Dr. TAYLOR thought the cases had sometimes been presented to the society in the evening, and the light had interfered with correct ideas of the lesions.

Dr. ZEISLER considered the case a typical case. The cases in Vienna were not so very frequent. They were brought into the clinics again and again. The difference between the papular eczema and this case was striking. The joints, hands, and face would be most affected, and in this disease were free. Even though we had too many terms in dermatology, don't let us throw away distinct pictures of disease. If we called this a papular eczema we produced a terrible confusion.

Dr. FOX would base his opinion as to the entity of the disease on its occurrence in early life, its neurotic origin, and its duration, but not upon the fact that certain parts of the body were affected, or upon the deep-seated character of the lesions.

Resolutions of Thanks.—Dr. TAYLOR returned the thanks of the members for the hospitality that had been accorded them at the hands of the Boston members. A fitting response was made by Dr. GREENOUGH in behalf of the Boston members.

On a motion of Dr. FOX, the association voted to extend the thanks of the association for the use of their rooms to the Boston Medical Library Association.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OPHTHALMOLOGY AND OTOTOLOGY.

Meeting of October 21, 1889.

Dr. OREN D. POMEROY in the Chair.

Cataract Extraction.—Dr. HERMAN KNAPP said that he had hoped to present to the meeting a case of cataract extraction. One of the patient's eyes had been operated upon about three years ago by the ordinary method. Upon the other eye the operation had lately been done without iridectomy. He wanted to show a peripheral opening. Unfortunately, the patient had disappointed him and he would have to defer his remarks.

The CHAIRMAN said that several cases of cataract extraction recently operated on at the Manhattan Hospital had resulted in loss of the vitreous. This had been evidently caused by the use of the spring speculum. The operations had been performed

under cocaine and upon patients known to be of the unreliable class, and therefore every precaution had been taken to avoid accidents. After the lens had been removed the patients had in several instances given a spasmodic contraction of the orbicularis, and, though the assistant had at once depressed the speculum, still, in spite of this, a large portion of the vitreous had been extruded. He had decided that it was better to operate without a speculum or forceps, and simply use either a lid elevator or the fingers.

Opening the Auditory Meatus.—The CHAIRMAN then introduced a patient upon whom the operation of opening the auditory meatus had been done, resulting in improved hearing. He felt a little uncertain about the case as yet, because a positive cure had not been effected. But he had made up his mind to succeed. It would be seen that the patient showed deformity of both auricles. The hearing distance was one inch, by the watch. After opening the canal the hearing distance had become two inches. He inferred that there was a tolerably normal drum membrane. There appeared to be an accumulation of superfluous tissue occupying the position of the normal canal. He had made an incision, thrusting the scalpel through about a quarter of an inch of sound tissue, when the knife had seemed to enter a cavity just where he had supposed the meatus should be. He had then made another incision, forming a V-shaped flap which he had cut off. He had then been able to pass a probe in three quarters of an inch. A rubber catheter had then been introduced which had been cut off to a suitable length for drainage. A good deal of suppuration resulted. The drainage-tube was removed and the cavity stuffed with boric acid, which would have been very good if it could have been kept dry. Then packing with iodoform gauze was suggested and tried. This was not satisfactory, for when removed it was a long, purulent, stringy mass. It had been next decided to let the cavity alone, simply syringing it with water. At the present time the discharge had almost ceased, but the canal was somewhat narrowed. He had ordered a silver tube made which he proposed to use until a permanent opening was secured. So far the hearing power had doubled. Whether there was anything like a reasonably good drum-membrane or not, he could not say. He had tried to use a rubber tube, but it would not stay in place. He intended to keep the canal open somehow.

Dr. KNAPP said it was exceedingly rare for such cases to be cured. Out of twenty-four or thirty such operations only one had been successful.

Dr. T. R. POOLEY thought the attempt to keep the canal patent by probes, plugs, and so on, was a procedure of very doubtful utility. He remembered a case which had come under his notice last winter of an exostosis of the auditory canal which had been removed by the electro-osteotome. This part of the operation had been successful enough, but the difficulty had been in keeping the canal from entirely closing. As long as he had kept using pieces of catheter or tubes and perforated plugs, he had not succeeded. But, after abandoning all these and treating the case as one of ordinary inflammation, syringing with hot water, and otherwise letting things alone, the patient had begun to improve, and now had a medium-sized canal large enough to admit of a view of the drum-head. The hearing also was very good. It must be admitted, however, that all these cases were attended with a great deal of difficulty.

The CHAIRMAN said that he had got far enough along to appreciate the uselessness of all tubes in such cases; at least, he would leave them out as much as possible. Still he felt that they had their analogue in the instruments used for piercing the ears for pendants.

Dr. H. S. OPPENHEIMER stated that his experience was limited to one case with very indifferent result. He suggested the

possible utility of a mild constant current of electricity kept up by means of an arrangement similar to that in use in hospitals for the healing of ulcers.

Coloboma of the Chorioid.—Dr. WEEKS reported a case which he said had had conditions making it somewhat rare. The case was one of microphthalmia with nystagmus. The cornea in the left eye had measured 8 mm., and in the right eye 9 $\frac{3}{4}$ mm. The pupils had been 3 mm. in diameter by medium illumination. Irides normal. R. V. = $\frac{2}{300}$; hyperopia 3 D.; L. V. = $\frac{2}{300}$; myopia; at the bottom of the disc hypermetropia in the normal parts, 16 D. The defects in the field of vision had been rather peculiar. The speaker had found a marked coloboma in the chorioid of the left eye taking in the optic nerve sheath. The defect in the field of vision had a little more than corresponded with the coloboma. In the right eye there had been a coloboma of the sheath extending upward and outward about a disc and a half in diameter. In the right eye the defect in the field of vision had corresponded with that of the left eye, although no corresponding coloboma had existed. The defect in the field for white had been much greater than that for light. The patient could distinguish the flame of the candle in a portion of the field encroaching considerably on that part of the field corresponding to the coloboma in the left eye. A similar condition existed in the right eye with no visible coloboma. For white the defect was very excessive. It was interesting, as Manz had shown by sections from cases of coloboma, to observe that the rods and cones disappeared at the margin of the defect. In two cases reported where the coloboma had been small, and had not reached the optic nerve, perception of light had been present over the whole field corresponding to the coloboma. If the perception of light were present in these cases where the rods and cones were absent, it went to show that their integrity was not necessary to the perception of light. The peculiar defect in the field of vision in the right eye, where no coloboma could be discovered with the ophthalmoscope, was unique.

A Perimeter.—Dr. KNAPP exhibited a perimeter which he had been using and which for ingenious simplicity he considered the best he had seen. On account of the intricate construction and complication connected with their manipulations, these instruments were not used so often as they should be. This instrument had the advantage of always being ready for use. The speaker thought that the present method of examining and recording astigmatic cases was a faulty one and might be improved.

The Treatment of Obstinate Deafness.—Dr. N. J. HEPBURN made some suggestions as to the treatment of obstinate deafness. He was instigated by the unsatisfactory nature of the results attending treatment of this condition. The class of cases to which he referred, or at least one of the varieties of it, was that of people who heard better in a noise. These answered all the tests for middle-ear deafness, but did not improve under treatment. The chairman had suggested multiple paracentesis, and the speaker had found that some of the cases behaved well under this treatment, but that others did not improve; indeed, that in some the hearing got worse. And in some it had even developed otitis. The use of the syringe would not infrequently cause vertigo. The idea had occurred to him that if he could inject through the small nozzle of a Davidson's syringe he could so regulate the flow as to limit the pressure on the labyrinth. By adopting this plan he had found that he got rid of much of the suppuration, and hearing was improved and the drum-membrane became somewhat more transparent. A case had come for treatment in which the patient, who had been the rounds, was so deaf that the speaker had thought that his hearing could not very well be made worse. He therefore

made a large perforation in the drum-membrane and fastened a Davidson's syringe to a Eustachian catheter, washing out the ear through the tube. The fluid escaped through the auditory meatus. The patient improved after three repetitions of this treatment so that from only hearing a watch at contact, he could hear it at eight inches distance. This maximum hearing had not been maintained, though hearing was still good at four inches. He had since pursued this plan in eighteen cases. When he found the end of the Eustachian catheter thoroughly engaged he allowed the other end of the syringe to fall into a weak solution of chloride of sodium, with a temperature of from 60° to 90° F. If it was found that the fluid was not flowing, an incision must be made in the posterior inferior quadrant. He found that the solution would come through very readily without any special leakage into the throat.

Dr. POOLEY said that the method used by Dr. Hepburn was not new. The Eustachian catheter had been used by Schwartze for the purpose of removing purulent secretions in acute processes, but whether with puncture of the drum-head or not he could not say; but he thought that the method had considerable merit in it. These cases always presented an accumulation in the cavity of the middle ear, and if this could be washed out the hearing would improve, and this was probably the explanation of the benefit obtained.

Cataract Extraction.—Dr. KNAPP then made some remarks on cataract extraction. He did not think simple extraction offered any better results than extraction with iridectomy. Whenever the capsule was left behind, it was sure to wrinkle and become clouded and probably agglutinated to the iris. The instrument he used was a specially made captotome, with a very delicate fine point. In operating he made his section follow the line of the transparent cornea as nearly as possible, as with this flap prolapse of the iris and inflammation were less likely to follow. He then endeavored to dislodge the lens by passing the instrument carefully under the iris and rupturing the capsule at its periphery. This method he considered better than to incise in the center, which left a scar which was detrimental to good vision. Patients for operation were fully cocaineized, which caused slight dilatation of the pupil. After the operation he used a one-per-cent. solution of eserine. Before bandaging the eye a one-per-cent. ointment of eserine was put into the conjunctival sac. He considered eserine the main factor in preventing prolapse of the iris.

Dr. POOLEY asked if adhesion of the capsule to the iris took place without inflammation.

Dr. KNAPP said it did; where the iris had been bruised or abraded, adhesion took place by first intention. He had seen an uneven notched iris heal perfectly round. He did not think a clean cut in the iris had so much chance of reacting as those which were only bruised. The speaker was not satisfied with vision of $\frac{2}{4}$ after cataract extraction; he wanted to get $\frac{2}{8}$. This was his aim in doing capsulotomy. He never attempted an operation without good light, and used an artificial light if necessary.

The CHAIRMAN said that he had seen posterior synechiae take place where there had been no apparent iritis and where the symptoms had been slight.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OBSTETRICS AND DISEASES OF WOMEN AND CHILDREN.

Meeting of October 24, 1889.

Dr. J. E. JANVRIEN in the Chair.

The Management of Abortion.—Dr. R. A. MURRAY read a paper with this title. He deplored the fact that no fixed prin-

ciples guided the general practitioner in the management of abortion cases. The result was often disastrous to the woman, for an abortion too frequently ushered in a whole series of uterine troubles—hæmorrhage, salpingitis, barrenness, subinvolution, and so forth. Abortion was always a pathological process. The muscular coats of the uterus were still undeveloped and contractions were inefficient. The cervix did not relax readily and involution was but slowly accomplished. Goodell had likened abortion to the plucking of immature fruit. Two symptoms were always present—pain and hæmorrhage. The speaker then went on to describe the symptoms of threatened abortion, in the treatment of which he advocated opium for the pain; extract of viburnum prunifolium would be of benefit, and chloral hydrate or the bromides, given by the mouth, seemed to contribute to the cessation of uterine action. Careful examination should be made to ascertain the exact condition of things, and whether the symptoms were really referred to threatened abortion or to some other cause. The appearance of regular menstruation was possible up to the second month, though not thereafter. If an escape of waters or membrane had taken place, then efforts at prevention should give way to others in the direction of hastening the process of abortion. Thorough and persistent antiseptic precautions should be maintained. The vaginal canal should be tamponed with gauze, well applied around the cervix by means of an applicator, the patient being placed in Sims's posture. If the bleeding was very profuse, alum might be used on the first tampon. Tampons were to be preferred to the colpeurynter. If the os was found dilatable, but not dilated, ergot might be given in small doses. When the tampon was removed the os was generally found to be sufficiently dilated to admit of the ovum being reached by the forefinger. It was better to empty the uterus. Examination of the endometrium should be carefully made, and if the membranes were found detachable they should be removed with a placenta forceps. If portions still adhered, the blunt curette of Thomas should be used to remove these fragments.

The operator should not be satisfied until the whole endometrium was freed from projections. The cavity should then be washed out with carbolic-acid solution of the strength of 1 to 100, a reflux catheter being used. The hæmorrhage would cease entirely as soon as the uterus was clear. If the uterus had been depressed during the examination it was most important that it should be raised again. In cases of neglected or of incomplete abortions, great care should be exercised. It was important that everything which had been preserved should be examined. If the membranes had not been made away with they should be approximated to determine their entirety. Examination should be made of the cervix and the endometrium should be explored. When the speaker was able to see what had been passed and it seemed complete, he simply ordered antiseptic vaginal washes with antiseptic dressings to the vulva, and made careful inspection of the cloths removed each day, watching also for any local abdominal tenderness or rise of temperature. In neglected cases where the patient showed evidences of septic trouble, all authorities agreed that the cervical canal, if closed, should be dilated, the cavity thoroughly washed out, and the curette used. The general septic symptoms should be combated by the administration of alcohol, quinine, and generous food. It was said that the galvanic and faradaic currents possessed a certain antiseptic action, but the speaker had had no experience with the method. He did not favor the use of the brush as advocated by certain French obstetricians, but thought the blunt curette would be found to answer all requirements. Subinvolution might be averted by the judicious use of ergot. Abortion and miscarriage were fertile sources of a train of supervening uterine troubles, and the proportion dying

from septic complications after miscarriages was greater than that of the deaths by sepsis after labor at term.

Dr. A. F. CURRIER thought that the method of treatment in abortion cases was one which had reached something like exactness. This was largely due to the advances made in the use of antiseptics. He was glad that such stress had been laid on the value of the blunt curette in diagnosing the condition of the endometrium after the expulsion of the fœtus. It was much more reliable and more easily used than the forefinger. It was his rule to apply pure carbolic acid over the entire mucous membrane of the uterine canal, so that anything missed by the curette might be reached by the acid. He obtained good results from this method. There might be conditions, as, for instance, after prolonged and profuse hæmorrhage, when interference at the time would be contra-indicated, in proof of which he cited a case from his own practice. Dr. Murray had spoken of tamponing the vagina but had not mentioned including the uterus. The speaker, however, advocated this plan and believed it facilitated the expulsion of the fœtus.

Dr. PAUL F. MUNDÉ said that in 1883 he had written a paper advocating the immediate removal of the secundines after abortion. This article had elicited a great deal of criticism because of the very positive views which it contained. Whenever he had to deal with a case in which abortion was imminent and unavoidable he would endeavor to save the woman loss of blood and at the same time would hasten dilatation of the os by tamponing the vagina with iodoform gauze. This might be removed in twenty-four hours and replaced if required. Sometimes it might be necessary to dilate the external os. For this purpose tupelo tents could be used, two or three of which might be introduced, though it was now easy to get them large enough to allow of the introduction of one or two fingers after dilatation. When the canal was sufficiently wide to admit of the procedure he would introduce his finger and remove the contents of the uterine cavity as thoroughly as practicable. He would endeavor to keep the ovum intact if the membranes had not already ruptured. He much preferred to empty the uterine cavity at one sitting whenever this was at all practicable. The class of cases for which he was usually called in consultation was that in which hæmorrhage, chill, and high temperature had already occurred. He generally found the canal sufficiently widely dilated to allow of the introduction of a finger, and even if this were not the case it was not difficult to open it. The finger once passed into the uterine cavity, the rest was easy, requiring only care and persistence in clearing it of its contents. He had always advocated this course, and it was still his firm conviction that a woman who retained within her uterine cavity any portion of a ruptured ovum was in danger of two accidents: first, hæmorrhage, severe and sometimes fatal; and, second, septicæmia. To those who urged the most extensive experience of cases in which the retained portions of the ovum or secundines had been allowed to take care of themselves he would say that, in spite of this experience, those gentlemen would surely some day come to grief. Nature would do a great deal, but it was not wise to let nature handle these cases too long. He differed with the last speaker, who thought that the curette was better than the finger. With an instrument it was impossible to determine that the cavity was really empty. He preferred to give the patient a little chloroform, and then, passing the exploring finger up to the fundus uteri and compressing the abdominal wall with the disengaged hand, he could determine accurately the condition of the cavity. Then a curette might be introduced and everything cleared away, when the finger should again be introduced. If it was ascertained that the work had been thoroughly done, then the patient might be deemed practically safe. He had yet to meet with a case in which he could regret having

conscientiously followed out this plan. He would never use more force than was justifiable, and would always be careful not to subject his patient to an injury more severe than that of leaving the uterus alone. The steps he had indicated were such as he always followed, unless the contra-indications were urgent and obvious—for instance, when the woman was very low and where temporizing was the only safe thing to do until she could bear interference. The speaker then described the various curettes and placental forceps which he found most useful, and went on to say that as soon as the uterine cavity was thoroughly clear he introduced a double-current catheter and passed in a stream of hot two-per-cent. carbolyzed water. He never introduced corrosive sublimate within the uterine cavity. He had always feared toxic absorption from its use. After the cavity was washed out the uterus invariably contracted, and there would be no further occasion for any local treatment, except perhaps in a few cases an intra-uterine injection for a few days. He wished to be understood as saying that he was not at all afraid of criticism on this subject. He was constantly reading in the journals about letting nature take care of these cases. He deemed it far wiser to give nature all the assistance possible in this particular. It had been urged that the procedure was unsafe at the hands of inexperienced men. If the practice was admitted to be sound in theory, then it was imperative that the inexperienced men should acquaint themselves with the requirements, and it was for such purposes that post-graduate schools were instituted. When it was necessary to induce abortion, as in cases of uncontrollable vomiting or fibroid in the pelvis, he found it best to introduce tupelo tents frequently, until the os would allow the finger to pass, and then, when the uterine canal was thoroughly dilated, the ovum might be gently detached by sweeping around the fundus uteri with a blunt curette, when it could generally be removed almost entire.

Dr. Fry, of Washington, was then asked to speak in reference to the use of electricity in the class of cases under consideration. He said that its use was not indicated in imminent abortion, but rather in neglected cases where the fragments of placental tissue remained in the uterus and produced hæmorrhage or septic symptoms. The faradaic current was to be used only during contractions with a view to increasing them. He did not think this current capable of inducing them. He had used the galvanic current for its coagulating effect. The positive pole was considered antiseptic as it eliminated oxygen and chlorine. The latter was frequently given off in such quantities that it might be detected by its odor. He had been conducting some experiments as to the chemical effects of the electric current upon micro-organisms, but at present he was not able to give any results, as there had been some inaccuracy in the technique incident to the initial observations.

Dr. H. J. BOLDT thought the subject of abortion was very well understood theoretically but not practically. It was his experience to be called to cases where the first principles of antiseptic precautions had generally been entirely ignored or neglected. He thought a three-per-cent. solution of carbolic acid hardly strong enough to use as an antiseptic, and the solution itself not so good as the bichloride. He never failed to make use of the finger for purposes of examination, and he urged it as a plan to be adopted in every instance. He, however, deprecated the employment of too much force where portions of the uterine contents still remained closely adherent. So long as they were not disintegrated and remained attached, he thought it unnecessary to interfere with them, as they would be dislodged in the course of time.

The discussion then became general and was closed by some brief comments by the author of the paper.

A Successful Case of Laparotomy and Supravaginal Amputation of the Uterus for Rupture.—Dr. HENRY C. COE read a paper with this title. On September 8th, at 1 P. M., he had been called to a desperate case of labor to perform Cæsarean section. The patient was a healthy Irishwoman twenty-three years of age, with a rapid, feeble pulse, and evidently in a state of collapse. The gentlemen in attendance had feared that rupture of the uterus had taken place two hours before. Examination of the abdomen revealed two tumors—a larger one filling the right side of the abdomen and extending as high as the ensiform cartilage, and a smaller one occupying the left iliac fossa—both firm and unyielding. It was evident that the former was the body of the uterus tilted over to the right and in a state of tetanic contraction, and the latter the head of the child. Palpation of the abdomen above the latter gave an ominous gurgling sound, suggestive of free fluid in the peritoneal cavity. Prolonged attempts had been made to extract the child by forceps and version. With the introduction of the hand into the vagina the discovery of laceration of the anterior lip of the cervix antero-posteriorly and a laceration through the vaginal junction on the left side was made. The finger passed through the rent entered the abdominal cavity. The child, which was unusually large, was dead, presented in the left dorso-anterior position with the right hand and foot prolapsed, and was firmly impacted, the head seeming to be partly outside of the uterus. Believing that a further attempt at version would only extend the tear, he at once decided that laparotomy offered the best chance of saving the woman. The patient's condition was desperate, and the surroundings were such that any approach to antiseptic would be impossible. She had lost a large amount of blood, and her pulse was so feeble that hypodermic stimulation with brandy and ether was resorted to. A free incision eight inches in length was made through a very fat abdominal wall and into the peritoneal cavity, which contained a quantity of fluid blood and clots. A rent was found extending upward from the cervix through the left broad ligament half way to the fundus. The head of the child lay in the left iliac fossa outside of the uterus, being grasped by the edges of the tear. It was at once seen that this would not be a case for suturing the uterus, as arterial hæmorrhage was going on from the vessels of the lacerated broad ligament. As no time could be lost, the uterus was turned out of the cavity, the cervix constricted by a piece of rubber tubing cut from a fountain syringe, the écraseur having been forgotten in the haste, and the child extracted through the tear. Without waiting to remove the placenta, the tubing being secured with an artery forceps, the uterus was excised, together with the ovaries and tubes, and all bleeding vessels were tied. This part of the operation was completed in twelve minutes. The utero-sacral ligament on the right side had been also badly lacerated. After securing the vessels and sewing the torn peritonæum with a continuous catgut suture, the peritoneal cavity was thoroughly irrigated with hot water and the stump secured in the wound with knitting-needles. No drainage-tube was used. The bladder was examined and found apparently uninjured. The cervix had been so badly torn that it subsequently sloughed out. The patient rallied well, but had a pulse of 140 to 150, and no hopes had been entertained of her recovery. From the outset she was free from nausea and able to take stimulants. On the second day her temperature had risen to 102° to 103° F., and there were general abdominal tenderness and distension, but, by maintaining free catharsis and using the ice-bag, peritonitis was aborted. The urine was drawn for the first four or five days. The stump quickly necrosed; and on the fourth day the tubing was replaced by a Kæberlé's serre-nœud. The entire mass was removed by the end of a week, and the cavity packed with iodoform gauze. The patient had taken

nourishment and stimulants freely, but her pulse had remained at 120, and her temperature had risen every evening to 101° to 102° F. At one time an exhausting diarrhoea had threatened her life. She complained of no pain, but suppuration of the hæmatocele which had formed in the left broad ligament was feared. Early in the second week the urine began to escape *per vaginam*, although the patient could retain it to some extent. A careful examination with the finger and speculum showed that a cervico-vesico-vaginal fistula had been established, and that there was considerable sloughing of the upper portion of the vagina. All the necrosed tissue at the bottom of the abdominal wound was picked away, until nothing remained of the cervix but the portio vaginalis. The wound granulated satisfactorily, but there was a free communication with the vagina through which urine and the douche water sometimes welled up. She was allowed to get up at the end of the fourth week. The fistula was still patent, as the urine still dribbled away, but not so freely as at first. At the end of the fifth week the abdominal wound had entirely closed. It was hardly necessary to add that the after-treatment of such a serious case in a dirty tenement-house had required constant vigilance or the patient would certainly have succumbed to the operation or the subsequent complications. Before commenting on the case it was important to classify it. Dr. Robert Harris, of Philadelphia, had clearly pointed out that it was neither a Porro nor a Cæsarean section proper, but an operation *sui generis*. Prevôt, of Moscow, had reported the first case, an unsuccessful one, in which the ruptured uterus had been excised after removal of the child through the rent without previously incising the organ. There had been ten true Porro-Cæsarean sections for rupture of the uterus in this country, four of the women having been saved. Dr. M. Price had reported a case in which an operation very similar to the speaker's had been performed last April, but with a fatal result. In conclusion, the speaker said that, given the same conditions, he would adopt precisely the same method of procedure in another case of rupture of the uterus, because he believed that it offered the best chance of saving the patient, for the following reasons: 1. That this operation could be performed in the shortest possible time. 2. That it was impossible to properly suture such an extensive rent, with contused edges, as the one described. There was also imminent risk of hæmorrhage after removal of the temporary constriction. 3. Where prolonged use of instruments without antiseptic precautions had occurred, the interior of the uterus was sure to be so badly contused that subsequent danger of sepsis was great. The additional shock to the patient from removal of the lacerated uterus was preferable to the exposure of septicaemia, which would certainly follow by leaving it. 4. The objection made by Dr. Harris that a cervix split by laceration could not be very well fitted for constriction, as the part below the wire might discharge septic matter into the abdominal cavity through the rent, was a good one. But the writer thought, if the tear in the peritonæum was carefully closed and the stump properly constricted and shut off from the peritoneal cavity, that there was less danger than in trusting to the suture alone without constriction. Finally, with due respect for the opinion of such a weighty authority as Dr. Harris, who believed that it "would hardly be admissible" to subject a woman with a normal pelvis to "the unsexing operation of removing the lacerated uterus with the ovaries, as was done by Prevôt," it should be borne in mind that the surgeon was sometimes called upon to do, and to do at once, what he believed was the best thing for the patient without regard to established precedent or even to the ordinary rules of surgery.

Carcinoma of the Uterus and Ovary.—Dr. A. PALMER DUDLEY read a paper with this title, and presented some patho-

logical specimens. He said the growth had been removed from a patient fifty-one years of age, of Irish birth, whose occupation had been that of a domestic servant. Her family history was good. She had been married twenty-eight years, and was now a widow. She had borne two children and had suffered one miscarriage since, due, she had said, to lifting a heavy weight. She had been operated upon several years before for some form of uterine trouble; just what it had been could not be learned. From that operation up to within three years she had been perfectly well. The patient had said that within the last three years, the exact time she could not remember, some sort of tumor had broken in the pelvis, and that a large amount of blood had come away. This had been followed by repeated floodings which generally had yielded to treatment. She was admitted to Randall's Island Hospital on November 13, 1888, into the service of Dr. McLean. Digital examination showed the uterine cavity to be large and the os patulous. Quite a large tumor of firm consistence, probably fibroid, was found to lie above and to the right of the uterus; the growth moved with the uterus. A curette was used and a large amount of villous tissue removed, which had the appearance of a cast of the uterine mucous membrane. The speaker could not learn whether there had been a microscopical examination of this tissue. The possibility of malignancy had been noted and recorded in the history book. The hospital service had changed and she had come under the speaker's care on February 1, 1889. He proposed to operate for removal of the growth, but the patient would not entertain the idea, and left the hospital February 3d. She had not been seen again until September 23d, when she reappeared at the hospital and begged for the operation for her relief. During her absence she had suffered from repeated hæmorrhage. Further examination revealed an increase in the growth to the right of the uterus, but the latter seemed to have remained of about the same size. The passage of the finger through the external os revealed a growth presenting, which had the feel of a submucous fibroid. There was no odor about the parts that was unnatural. Pain was absent, there was no cachexia, and, in fact, there were no objective symptoms of malignant disease. The speaker made a diagnosis of subperitoneal and submucous fibroid, and proposed suprapubic hysterectomy, as the growth was too large to remove *per vaginam*. On October 4, 1889, he performed a modification of Schroeder and Bantock's operation, which he had designated previously as the intrapelvic, but extraperitoneal, method of treating the stump in hysterectomy. After the uterine and such of the structures as had been involved by the morbid growth, including the vermiform appendix, had been removed, the mass was submitted to a pathologist for microscopical examination, and a diagnosis returned of epithelioma of both uterus and ovary.

Dr. COE, by means of a black-board illustration, depicted the steps of the operation he had performed, demonstrating thereby the all-important factor that the completed closure of the various incisions left no ligatures in the pelvic cavity, that if pus formed it would be outside the cavity of the pelvis, and that perfect drainage could be effected through the os uteri externum.

NEW YORK CLINICAL SOCIETY.

Meeting of October 25, 1889.

Dr. W. H. FLINT in the Chair.

Operation for Tubercular Peritonitis.—Dr. F. H. MARKOE presented a patient upon whom he had operated for tubercular peritonitis. The diagnosis in the case had been by no means clear, but when the peritoneal cavity was opened it had been

found to be occupied by a large tumor, comprised of agglutinated intestines and thickened omentum. The fact that the morbid material contained quantities of tubercle bacilli had settled the question of diagnosis. The patient had made a good recovery.

Removal of a Kidney for Pyelo-nephritis with Calculus.

—Dr. MARKOE then presented another patient from whom he had removed a kidney a few weeks before. The diagnosis in this case had been that of pyelo-nephritis with calculus. The kidney was also shown to the meeting. It was greatly enlarged, and contained a calculus of about the size of a walnut in its pelvis.

A Laryngeal Illuminator.—Dr. D. B. DELAVAN exhibited an arrangement by which illumination of the interior of the throat could be effected by means of a strong light, preferably electric, transmitted through a glass rod suitably curved, and fitted with an opaque disc, to prevent the distribution of the rays, and applied externally to the patient's neck.

A Large Intubation Instrument.—Dr. DELAVAN then showed a large intubation instrument, the use of which he urged for treating certain conditions of the upper air-passages in the adult. Its applicability was manifest in acute as well as chronic cases, such as acute oedema involving the larynx or any condition of stenosis of the larynx. It had been maintained that, in order to successfully deal with chronic stenosis of the larynx, it was necessary to rupture the bands which caused the stenosis, and that by inserting one of these intubation tubes no good was done. He thought that if the bands were divided by incision and then dilated by the instrument the desired result would be obtained, as the cut surfaces would be kept apart till they healed, while the tube was worn. He wished that surgeons would give the instrument a thorough trial.

Dr. L. E. HOLT inquired whether these instruments had ever been employed for hysterical spasm, in which women frequently suffered with marked and alarming dyspnoea.

Dr. DELAVAN replied that he had never heard of its use in that condition. He thought that a little galvanism in those cases would be more effective.

A Pulmonary Click due, possibly, to Separation of the Costo-sternal Articulation produced by Vomiting.—The CHAIRMAN reported the history of a case of a man, twenty-three years of age, in such perfect health that he could only be designated as a patient by a considerable stretch of courtesy and enthusiasm. Yet he had presented a physical sign which was susceptible of diverse interpretations, and which the writer had neither heard described nor encountered until this case had come under his observation. The patient's father had died with pulmonary tuberculosis in 1883, but there had been no other cases in the immediate family of the patient except in a cousin of remote degree. The physical sign in question had consisted of a distinct clicking sound, such as was often heard in incipient phthisis; this had been heard with maximum intensity at the junction of the fourth rib with its corresponding costal cartilage on the right side. It had been occasionally so loud as to be heard at a distance of some feet from the patient. The click had been generally noticed at the end of inspiration, but frequently during expiration or forced abduction and eversion of the arms. The click, when first heard by the patient in September, 1887, had been preceded the previous year by a depreciation of his general health without evident cause. There had been lancinating thoracic pains, which, in view of the recent death of his father from tuberculosis, had caused the patient considerable concern. These pains had been bilateral and chiefly confined to the supra-clavicular and infra-clavicular regions. In the summer of 1887 the pains had ceased in all other parts of the chest, and had become strictly localized at the junction of the fourth rib with its costal

cartilage, in the exact position where the click had subsequently appeared. At the time when the lancinating pains had become localized at this point, and indeed up to September, 1887, repeated physical examinations made by the writer had failed to detect any other thoracic sounds. In the autumn of 1887 the pains at the fourth costal cartilage had disappeared and had never returned. Shooting pains at the apices of the lungs had still recurred at long intervals. About this time the patient had sailed for Europe. During the voyage he had vomited profusely several times. The acts of emesis had been devoid of pain. Toward the end of the voyage the click had made its appearance. At first the sound had been so faint as to be almost imperceptible and of inconstant occurrence. It had gradually grown more frequent and more intense. The sound at that time had appeared only at the end of inspiration and had not been produced by any motions or changes of posture other than those incident to the act of respiration. After the patient's arrival in Europe the click had recurred with diminishing frequency, and in a few weeks had entirely disappeared. In May, 1888, during the patient's homeward voyage, the click had reappeared under precisely the same circumstances which had attended its first development. This time, however, the sound had not disappeared, but had remained up to the present date. After its reappearance it had at first occurred only at the end of inspiration, and had been independent of movements other than those of the respiratory muscles. A few months later, however, the patient had noticed that it was also caused by forced abduction and external rotation of the humerus, the pectoral muscles being thus put upon the stretch. A few months ago it had been noted that the sound was occasionally reduplicated, occurring both with inspiration and expiration. Quite recently a single expiratory click had been heard by the patient. There had been no cough at any time. A remarkable immunity from so called "colds" had existed for the last three years. A reliable spirometer had shown the patient's breathing capacity to be 310 cubic inches. There had been no tenderness over the seat of the click, either on percussion or on firm pressure. There had been no abnormal mobility of the rib or of the cartilage. The writer was inclined to the belief that the click proceeded from the fourth costo-sternal articulation, or from that of the fourth rib with the fourth costal cartilage. He had submitted the case to the meeting in the hope that some of its members might have met with analogous cases which would throw some light on the subject. He thought he was justified in calling attention to the case because of the difficulty which, in similar ones, might attend the exclusion of pulmonary tuberculosis.

The reading of this history was followed by a few remarks, the substance of which went to show that the condition described was probably the result of the exertion of vomiting, which might have produced separation of the ligaments of the costo-sternal articulation.

Miscellany.

Ectopic Gestation.—At a meeting of the Philadelphia County Medical Society, held on October 23d, Dr. Mordecai Price read the following paper:

In bringing to the notice of this society the much-discussed subject of ectopic gestation, my hope is not so much to advance anything new as to make plain our duty and manner of procedure in these desperate conditions. Bernutz and Goupil, of France, and Parry, of our own country, did much to advance our knowledge on this subject, but it remained for Mr. Hallwright to bring it forcibly to Mr. Tait's notice in

one of his patients, in whom he had diagnosticated ectopic gestation, and urged operation. "The suggestion staggered me," says Mr. Tait, "and I am ashamed to have to say I did not receive it favorably." A second hæmorrhage killed the patient. A post-mortem examination revealed the fact to this great leader in abdominal surgery that Mr. Hallwright was correct in his conclusion, and that the patient could have been saved. An opportunity was soon offered in Dr. Dolan's case, of Halifax. Dr. Dolan had also diagnosticated ectopic gestation, and given as his opinion to the husband that nothing but an operation would save the patient's life. He telegraphed for Mr. Tait, who not only agreed with him, but had the requisite daring to operate, save the patient, and revolutionize the whole treatment of extra-uterine pregnancy. I leave it to you, gentlemen, to judge to whom the greater amount of credit is due—to the practitioner who urged it, or to the illustrious surgeon who performed it.

A pregnancy, as we all know, should be within the uterine cavity, and the only other place is primarily in the tube. That this condition may be possible, the tube must be diseased, its lining membrane removed, its ciliated epithelium no longer urging the product of conception onward to its natural abiding place nor retarding in the least the spermatozoa from intruding on dangerous and forbidden ground. This condition is brought about, I believe, in fifty per cent. of the cases by gonorrhœa, and in the remainder by cold, septic conditions following childbed, and catarrhal affections from other causes. That the pregnancy in the beginning is always tubal, I think is well proved, from the fact that the tube is the only portion outside the uterine cavity offering the conditions favorable for impregnation. The product of conception thrown into the peritoneal cavity either at the time of impregnation or during the first few weeks of gestation would undoubtedly be digested. We have the best proof of this in the fact that in early ruptures into the peritonæum of only a few weeks no fœtus can be found; only the blood clot, the diseased tube, and membrane remaining. Those cases that have advanced to maturity in the peritoneal cavity have, without doubt, been those first developed in the tube, and then ruptured into the broad ligament, and, when able to resist the digestive fluids of the peritonæum, the secondary rupture has taken place.

We may pass over the other forms of so-called ectopic gestation, for, if they ever occur, it is so rarely that they do not deserve our consideration. Tubal pregnancy would be of but little moment to us if it were not for the fact that most patients are not aware there is anything wrong. If they suspect pregnancy at all, they have no reason to doubt that it is of the usual old-fashioned kind, and the first warning, alike to patient and doctor, is rupture of the tube, with symptoms of internal hæmorrhage—often so serious that the patient lives but a few hours. These cases are far more numerous than you would suppose—in our city alone, from all sources, about twenty-five a year; and when you remember that five years ago the mortality was one hundred per cent., and now at least ninety per cent. are saved, we have much to be thankful for to Mr. Tait and his adviser, Mr. Hallwright.

The symptoms of ectopic gestation before rupture are of a vague and uncertain character. Those best qualified to properly interpret them, whose experience in such conditions has been greater than any other investigators', have yet to see one and recognize it before rupture. The only reported cases said to have been recognized and treated before rupture have been in the hands of our electrical friends and enthusiastically dwelt upon, and the man who would treat them with a knife has been given a back seat and denounced in unmeasured terms for his mutilation of the poor woman when it was so easy to get rid of the product of conception by so safe a plan as the electrical current. But we find by investigation that in many of these reported cases there was little foundation for the belief that the women were pregnant. Some of them have fallen into the hands of other men and been operated on, and no pregnancy existed. And I can not but think the others could not bear investigation requisite to a proper diagnosis.

The symptoms after rupture are sufficiently plain and urgent to warn any earnest medical man of the patient's condition. They are as plain as any other surgical affection and more imperative than most. In a woman who has been sterile for a length of time, it may be for years, whose period has been delayed for two or three weeks or longer, after slight exertion or lifting some heavy object, there occurs agonizing

pelvic pain and collapse, followed by all the symptoms of loss of blood. If the patient reacts, this is followed by recurring pain and collapse, constant uterine hæmorrhage, it may be with small loss of blood, discharges loaded with shreds of decidua, leaving the impression in the patient's mind that she has had a miscarriage. There are pain and fullness on the side of rupture, with a mass of a boggy, fluctuating consistence in the pelvis. No one case being a repetition of any other, there is nothing fixed and unchangeable, save the termination—death, almost without exception, unless prompt surgical aid is given. I know no better place than just here to call your attention to the terrible mortality of the past. All of Bernutz's reported cases ended fatally. Dr. Formad, the coroner's physician, in a letter to my brother, reports nineteen cases of death from hæmorrhage from rupture of tubal gestation sacs. All ended fatally in six hours but one. How differently this list compares with that of many operators! All have recovered, save a very small percentage, from the surgical treatment in the hands of these operators.

There are many conditions that may be confounded with extra-uterine pregnancy. In fact, any mass in the pelvis, such as tubal trouble, a small ovarian or dermoid tumor, hæmatocele from traumatism, an abscess of the tube or ovary, gonorrhœal pyosalpinx, all have been mistaken for extra-uterine pregnancy. Even our electrical friends have mistaken tubal trouble for extra-uterine pregnancy, and wasted many valuable sittings to kill the fœtus, where none existed, and, strange to say, they did not cure the diseased tube. How, then, Mr. President, can we ordinary mortals come to a positive diagnosis? But these mistakes of diagnosis are of small moment, as the conditions which could be mistaken for extra-uterine pregnancy should all be removed by the knife. I have seen the abdomen opened several times when a positive diagnosis had been made, where no pregnancy existed, and a small pus tube or dermoid tumor instead. I am sure the operator was not greatly disconcerted by the conditions found. No one need give himself anxiety; he should feel sure before operating that whatever the mass is, it must come away. In most cases of ectopic gestation in our own hands the diagnosis was made before operation. Rupture had taken place in every case. Diagnosis of tubal pregnancy before rupture would simply be a happy guess. Hæmatoceles, that have given our predecessors so much trouble, I think can be credited in great measure to ectopic gestation, and the remaining small number to traumatism.

We have come to that period where experimental treatment of ectopic gestation is a disgrace to our profession. Electricity, with all its barbarous instruments and murderous delays, will, I hope, ere long be forever thrown aside as a means of treatment for this condition. Its history certainly does not offer to any thinking mind any proof of its value, while, on the contrary, its record of death is truly appalling. Puncture, or injections into the sac of morphia or any substance, with the hope of killing the fœtus, is attended with greater risk to the mother than an immediate operation for its removal. I can find no language strong enough to express my condemnation of these experimental methods.

Operation.—Where there is time, the room should be thoroughly cleaned, and all needless articles of furniture removed. A most efficient cleansing of the body with soap and water and brush is necessary, and the bowels should be thoroughly evacuated. No antiseptic should be used. If possible, a trained nurse should be obtained—one who is accustomed to the work of the operator, able to cleanse and take care of a drainage-tube and encourage the patient to bear patiently with the discomforts necessarily following an operation of this kind. Opium must be positively forbidden in all abdominal work; it interferes with the secretions, sickens the patient, makes her irritable and hard to manage, and conceals the symptoms of danger and otherwise complicates the recovery. A good light is needed. Every instrument and ligature and suture should be carefully scalded and placed in trays of warm water, handy to the operator or his assistant, so that in case of any emergency there will be no delay, for time is a material factor in these operations. The shorter the operation the less the shock. It should be minimized in every detail; short incision, careful enucleation, perfect tying, most thorough irrigation with warm distilled water. No antiseptic whatever has any place or purpose in this operation. Antiseptics

have done bad work for good operators. We see this admission in the journals almost daily: "Perhaps the antiseptic was too strong." Chemical antiseptics of any kind in the peritonæum do murderous work, and should be abolished by law, if our surgeons have not sense enough to discard them in this department of surgery. The after-treatment in these cases is of great importance. The drainage-tube should be cleaved every half-hour for the first day or two, until the discharge becomes small in quantity and serous in character, when it should be removed. The contents of the bowel should be kept in a soluble condition; and it should be purged with Epsom salts upon the slightest indication of peritonitis, when the symptoms will disappear like magic. The patient should be kept in bed from three to four weeks in the most favorable cases, and longer if deemed advisable. Any member of this society may be called to do this operation without preparation, instruments, or nurses, and I have no doubt you would meet all the requirements of the case possible under the circumstances. With a patient bleeding to death, you can not wait for anything. Where the surroundings and the condition of the patient will admit, an operator of known skill and courage should be procured.

The Invasion of the "Masseur."—We must beg our readers to keep a close eye upon the *masseur*. He is bearing down upon unlinged humanity with a steady and relentless stride. He develops in the midst of us, he sails over from Germany and England to us, while, if there are any graduates of Heilgymnastik still left in Denmark, Sweden, or Norway, we should like to know it; for it has appeared to us, after some busy morning, that they have all called. Truly, the *masseur* is among us. He is a man of great resources. As his fraternity increases, he does not lose heart, or complain of competition, or seek protection from the State—he simply enlarges his field. In olden times the rubbing of a stiff knee with officinal linimentum saponis was the center and circumference of massage; soon, however, we learned how soothing was the emollient and theobromated hand upon the hyperæsthetic skin and diseased muscle. The *masseur* became firmly established as the resourceful prop of hysteria and unfailing staff of morbid locomotion. But then the sinewy and insidious hand began to gather adventitious aids, and seek new worlds to conquer. Having organized its movements into a company of Gallic polysyllables, so that its manoeuvres of *tapotiment* and *pétrissage* and *effleurage* should not be mistaken for plain, every-day slap-slap, jab-jab, and thump-thump, it proceeded to attack all the several diseases and organs of the body. Adipose tissue in excess was made to disappear, while glandular tissue, if mammary, was rubbed to make it grow. Massage has now applied itself to diseases of the eye, and granular lids are, *quoad* the granulations, artistically rubbed off; it has invaded the mouth and throat, reducing hypertrophied tonsils, opening the Eustachian tubes, and curing ear-ache and deafness. The abdominal viscera were the early and easy subjects for this now illustrious science. The colon's lax vermicular waves are tempestuously hastened, and the modest stream from the smaller bowel has scarcely babbled through the ileo-cæcal valve before it is rushed madly into the rectum. The pelvic organs have of late received the devoirs of this new art; and the uterus has been rubbed and stroked and pommeeled, all in pure French terminology, until this martyr-viscus could not help but free itself from adhesions and congestions, and pillow itself gently on its original vesical cushion. Lastly, we learn that the heart is to have massage. The heart has been, we are told by poets, torn and bruised, and bled and broken; but it remains for modern science to see that it shall have *effleurage* and *lomi-lomi*. There are still a few things left for the *masseur*. Can he not apply *tapotiment* to the brain, or, at least, to the cerebellum? Has he done justice to the kidneys? Might not the ovary receive a course of artistic jabbing before it is removed and bottled? When all fields are conquered, and every viscus springs responsive into blooming juvenescence beneath his learned touch, we recommend the *masseur* to Christian science.—*Med. Record*.

ANSWERS TO CORRESPONDENTS.

No. 297.—There are many excellent methods of embalming. The best are by injections into a large artery twenty-four hours after death, when muscular rigidity has disappeared. For temporary preservation,

Suequet's injection of sodium hyposulphite will answer; the preservative action lasts until all the hyposulphite has been converted into the sulphate. For permanent preservation, the method employed by Brunetti, of Padua, is perhaps to be preferred. Cold water is first injected until it returns perfectly clear (in from two to fifteen hours); alcohol is then injected for fifteen minutes; commercial sulphuric ether is then injected and allowed to remain from two to ten hours; a tepid watery solution (supposed to be from 15 to 20 per cent.) of tannin is then injected; finally, in from two to five hours more, the body is dried with a current of air at about 90° F., the drying process taking from an hour and a half to five hours. A less troublesome and reasonably satisfactory method is by injecting a mixture of a pint of alcohol and three quarts of a saturated solution of zinc chloride, the thoracic and abdominal cavities being treated with a solution of zinc chloride in stypitic colloid.

No. 298.—Exalgine is a methyl derivative of acetanilide. It is freely soluble in water and in alcohol. It is closely allied to antipyrine in its physiological action, and is used as an anodyne, from six to twelve grains being generally given in the course of twenty-four hours. Single doses of seven grains and a half are said to have produced toxic symptoms.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

EXHIBITION OF AN IMPROVED APPARATUS
FOR THE THERAPEUTIC USE OF
COMPRESSED AND RAREFIED AIR,
WITH REMARKS ON
THE HOME-TREATMENT OF PULMONARY AFFECTIONS.*

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THE apparatus which I have the honor to exhibit to the fellows of the college is primarily designed for use at the home of the patient, though the same features of construction which enable it to fulfill this purpose likewise recommend it for use at the physician's office; and by multiplying the number of delivery-tubes and introducing a motor and reservoir, it may be adapted for use in hospitals. In the "New York Medical Journal" for February 23, 1889, I have illustrated the arrangement of an apparatus for hospitals, permitting the treatment of seventy patients in the course of about two hours. The apparatus for inhalation of compressed air has been exhibited previously, though not before this body. But the apparatus for expiration into rarefied air has not yet been publicly described.

My attention had been called to the value of modifications of respiratory pressures in the treatment of pulmonary affections, and especially of phthisis, even before I became a student of medicine, by some rather remarkable recoveries ensuing upon such treatment in the practice of my brother. The apparatus which he employed was that of Waldenburg. A description of this instrument, by Dr. Pepper, and remarks upon its therapeutic employment by Dr. J. Solis-Cohen, may be found in the proceedings of the college (Feb. 2, 1876), "Transactions," third series, vol. ii.

Much of the success of this therapeutic measure depends upon its regular and continuous use. To insure this at such times as visits to the physician's office are impracticable, the apparatus must be placed in the patient's home. Waldenburg's apparatus is large and cumbersome. It is not continuous in action, its adjustment is troublesome, and its cost, fifteen years ago, was excessive. These considerations induced my brother to undertake some experiments with the view of providing a substitute which should be small, cheap, easily managed by a patient or nurse, and reliable as well as cleanly. He, however, abandoned the gasometer plan, and his efforts were not entirely successful. Taking the matter up where he had left off, I soon realized that the only available method of securing a certain, regular, and continuous pressure was to return to the gasometer; but I found that the desired reduction in size could be accomplished by using the gasometer as a regulator only, and not as a reservoir. This necessitated the introduction of another source of air supply; and as the simplest, cheapest,

and most practicable, I chose the foot-bellows of the dentist's blow-pipe. Any form of pump available under the particular conditions, or even city water pressure, might also be adapted; but the bellows is preferable under ordinary circumstances. This combination of foot-bellows and small gasometer solved the problem so far as the inhalation of compressed air is concerned. With the assistance of Mr. Charles Richardson an apparatus was constructed in 1883 which has been in continuous use ever since by others as well as by myself, and has given complete satisfaction. Though it has already been described in print,* I may be pardoned for again exhibiting its construction, as several mechanical improvements have been introduced that have not yet been published.

It consists of a gasometer ("Compressed air," Fig. 1), of which the air chamber is eight inches in diameter and twenty-four inches high. The water chamber is pierced at the level of the base of the overflow tank (seven inches from the top) with a row of perforations, allowing the water to escape into the tank under pressure of air in the air cylinder. The air cylinder carries, two inches † from its open base, two shelves, one on each side, on which are placed ballast-weights for the purpose of lowering the center of gravity, and thus maintaining the steadiness of the apparatus. Both shelves and weights are perforated to avoid resistance of water. As the area of the top of the air chamber is just fifty square inches, atmospheric pressure upon it equals, in round numbers, 750 pounds. With the ballast upon its shelves, the cylinder weighs ten pounds, giving an excess pressure of $\frac{7}{8}$ atmosphere. Weights are furnished in two sizes, in the shape of rectangular blocks of iron $4\frac{1}{2}$ by 2 inches surface, and about $\frac{1}{2}$ inch and 1 inch thick, respectively. The smaller ones are bored out to weigh $1\frac{1}{4}$ pound each; the larger ones to weigh $2\frac{1}{2}$ pounds each.

Being placed on top of the air chamber in successive pairs (one on each side, to preserve balance), they bring the pressure up to any desired amount not exceeding $+\frac{1}{30}$ atmosphere. Thus:

Cylinder and bottom weights = 10 lbs. = $+\frac{7}{8}$ atmosphere.
 $2\frac{1}{2}$ lbs. (two small weights) additional = $12\frac{1}{2}$ lbs. = $+\frac{1}{60}$ atmosphere.
 $2\frac{3}{4}$ lbs. (two small weights) additional = 15 lbs. = $+\frac{1}{30}$ atmosphere.
 $3\frac{3}{4}$ lbs. (one small weight and one large weight) additional = $18\frac{1}{4}$ lbs. = $+\frac{1}{20}$ atmosphere.
 $6\frac{1}{4}$ lbs. (one small weight and two large weights) additional = 25 lbs. = $+\frac{1}{30}$ atmosphere.

The air cylinder is furnished with two goose-necks, one (8) for the attachment of the tube (6, 7) from the bellows, conveying compressed air; the other (9) for attachment of the tube (10, 11) connected with the stop-cock (12, 13) and face-mask (14) or mouth-piece, through which the patient inhales. A perforation two inches in diameter is fitted with a screw cap carrying a hook on which a sponge may be placed, which is to be saturated with any volatile medicament (*e. g.*, terebene) that may be desired. The cap likewise contains a smaller perforation, into which an air-gauge may be fitted.

* Remarks made before the College of Physicians of Philadelphia, October 2, 1889.

* "N. Y. Med. Jour.," Oct. 18, 1884, and other places.

† The shelves have been raised to avoid catching the weight of the escape-valve.

When the gauge is not in use this is closed with a rubber plug. Still another perforation in the top of the air chamber is fitted with a valve, which permits escape of air should too much be

cylinder to indicate cessation of pumping. By means of the automatic escape-valve we are enabled to introduce a continuously acting pump if desired.

As an additional precaution against splashing, the air chamber and overflow tank are each provided with a deflecting hood about an inch and a half wide, and inclined at an angle of forty-five degrees.

With these improvements over its original construction, being the gradual suggestions of six years' experience, the compressed-air apparatus is felt to be complete. There is no particular in which I find it deficient, or can now think of a change which would increase its mechanical convenience or therapeutic efficiency.*

I have for some time been endeavoring to combine with it an apparatus for expiration into rarefied air—a procedure which has a certain limited degree of applicability, being sometimes employed alone, sometimes in combination with the inhalation of compressed air. There was no difficulty in constructing an apparatus merely for expiration into rarefied air. All that was necessary was to reverse the connection with the bellows, so that the latter would take air from the gasometer and deliver it into the room or the street, and to suspend the air chamber from a small pulley, counterpoising it with weights varied according to the desired negative pressure. The mechanical arrangement of pulleys and weights, the devices for adjusting the weights, the lowering of the outer water-tank (now a reservoir, and not for overflow), etc., are so obvious and so easily understood by looking at the instrument before us ("Rarefied air," Fig. 1) that description in detail is unnecessary. Mr. Metzger has made the various parts with his accustomed care, and has used a wire rope in preference to one of hemp. The difficulty lay in the combination of the two gasometers

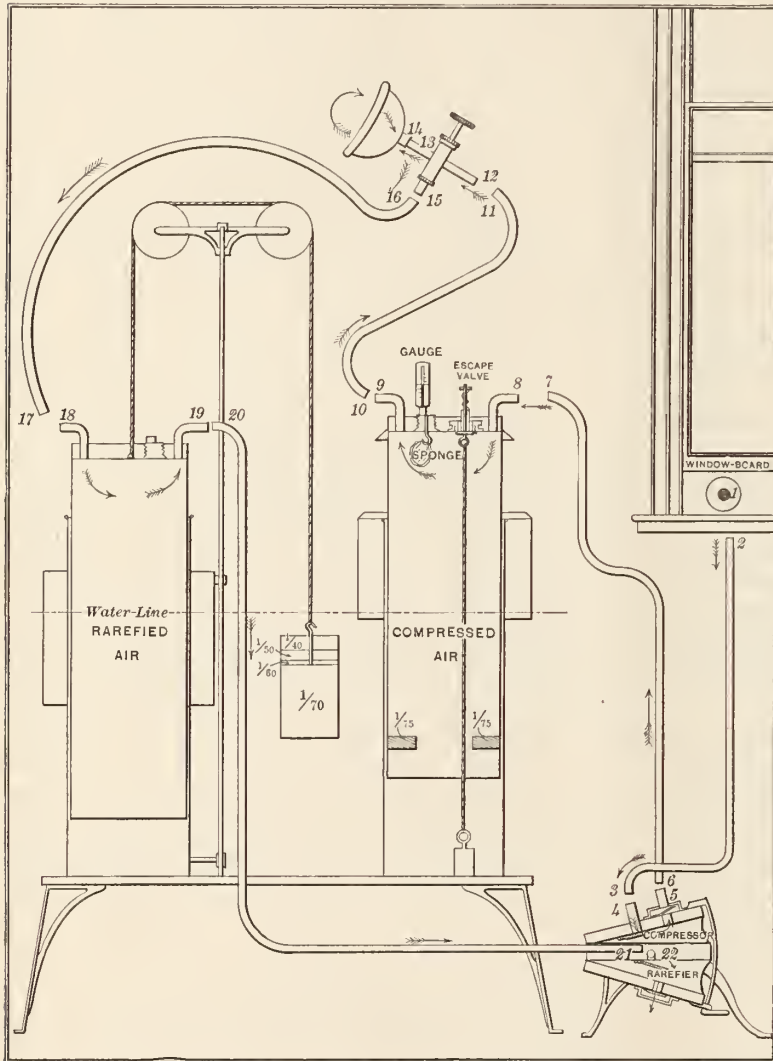


FIG. 1.—Explanation of figure. The parts are numbered in order of attachment, and in the direction of air-current; from the window to the mask through the compressed-air gasometer; and from the mask to the discharge pipe of the rarefying bellows through the rarefied-air gasometer. The discharge-pipe may also be connected with window if desired. The direction of air-current is indicated by the arrows.

sent over from the bellows. This valve, which is superior to my own arrangement for the same purpose, is the ingenious device of Mr. F. Metzger, of this city, who now makes the apparatus in every respect according to my instructions, and who has devoted much time and care to the details of construction in order to secure both strength and lightness. The escape valve is composed of two flat plates of brass, the upper perforated, the lower unperforated. They are held in apposition by a spring, and when in apposition no air escapes. The lower plate carries a chain, thirty-five inches long, which is attached to a weight which rests upon the floor of the water chamber. Should too much air enter the cylinder, lifting it too high, the plates are pulled apart, the air escapes through the perforated plate, and the cylinder falls to the proper level. This obviates any liability to splashing of water, which, before this attachment was made, would occur if attention was not paid to a line painted on the

into one instrument by means of a bellows which should, at the same stroke, compress air for delivery into one cylinder and rarefy air in order to exhaust the other cylinder. As we could not get any bellows manufacturer to construct this, Mr. Metzger at last made an experimental one with his own hands (see Fig. 1), and it answers the purpose perfectly. It is in reality two bellows, mounted back to back, on the same frame. The downward stroke of the lever compresses the upper bellows and expands the lower one. The recoil of the spring in the upper bellows expands that one and compresses the other. There is no communication between the two bellows. By means of a tube (2, 3) passing out of a window-board (1), the external opening being protected by wire gauze, the supply of air for inhalation is drawn from out of doors.

* My friend, Dr. D. D. Stewart, suggests that care be taken that the rubber tubes employed are not of the variety weighted with lead.

When both instruments are used together, as I show now, being brought into communication through the lungs of a patient by means of a double stop-cock connected with the face-mask or mouth-piece, the route for the air is as follows:

(a) From the street, (b) through the upper bellows, (c) to the compression gasometer, (d) thence to the lungs; (e) from the lungs (f) through the rarefaction gasometer (g) to the lower bellows, (h) which expels it into the room or into the street.

Apparatus for warming, drying, or moistening the inhaled air may be interposed at any desired point between the window and the patient.

The compression and rarefaction are made in the respective bellows. The gasometers act, to a certain extent, as reservoirs, but chiefly as intermediate regulating chambers, rising and falling to maintain a constant pressure in exact accordance with the weight placed upon them, and independent of the volume of air inhaled or exhaled, their available capacity being a little more than eight hundred cubic inches.

For purposes of observation, sufficiently accurate for clinical comparisons, though not for physiological data, the air chambers carry a scale of cubic inches, enabling us to see the approximate volume of air inhaled or exhaled at each respiration.

I have yet to describe the stop-cock by which the ingress or egress of air to or from the face-mask or mouth-piece is governed. It is modeled on the cornet-piston, and consists of a central barrel, carrying a hollow cylinder, controlled by a spring, and a horizontal tube, communicating freely with the central barrel. The face-mask or mouth-piece (14, Fig. 1) is connected with the proximal extremity (13) of the horizontal tube; the delivery tube of the compression gasometer (10, 11) with the distal extremity (12). The inner central cylinder contains two, or rather three, perforations. Two of these are opposite to each other, and, when brought in line with the horizontal tube, form with it a continuous channel. In this position air is allowed to pass from the compression apparatus through the mouth-piece or face-mask to the air-passages of the patient. The other perforation has no opposite fellow, and is on the side facing the mask or mouth-piece, so that when it is brought opposite the horizontal tube the air enters from the patient's lungs, and escapes through the inferior opening (15) in the central barrel. If it is desired to have exhalation made into rarefied air, this inferior extremity of the central barrel is connected (16, 17, 18) with the rarefaction gasometer. If the rarefaction apparatus only is to be used, the attachments to the compression gasometer are, of course, omitted.

If it is desired to have the patient exhale into compressed air, instead of connecting the stop-cock with the rarefaction gasometer, we can insert into this lower opening (15) an expiration resistance valve, as made for me by Messrs. Codman and Shurtleff, of Boston, and described in the "New York Medical Journal" for December 3, 1887.

If it is desired to have him inhale rarefied air, instead of connecting the stop-cock with the compressed-air appa-

atus, we insert into the horizontal tube (12) an inspiration resistance valve.

The "resistance valves," which I have called by that name because they offer a resistance to the passage of air, are simply little cylinders containing ebonite valves controlled by spiral springs. The tension of the spring is regulated by screwing the cap of the cylinder, and a scale engraved upon the side gives its value in fractions of an atmosphere. The expiration valve is arranged to move toward the perforated distal end of the cylinder, thus allowing the expiration current to escape whenever the pressure of the expired air reaches the indicated figure. The valve of the inspiration cylinder is arranged to move from the perforated top of the cylinder, thus allowing the inspiration current to pass toward the patient whenever the rarefaction within the lung reaches the indicated figure. The two valves, suitably mounted in one instrument, may be used independently of the gasometers (Fig. 2).

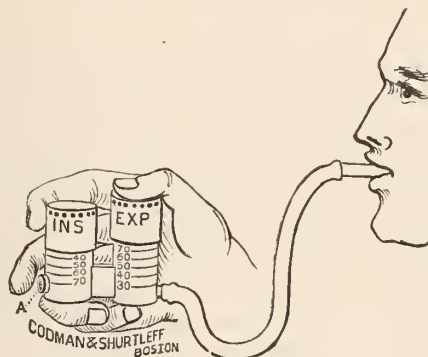


FIG. 2.

Thus, with these two gasometers, the double bellows, and a pair of resistance valves, we are able to obtain the mechanical satisfaction of all the conditions required for any of the following therapeutical expedients:

1. Inhalation of compressed air.
2. Inhalation of rarefied air.
3. Exhalation into compressed air.
4. Exhalation into rarefied air.
5. Inhalation of compressed air with exhalation into compressed air.
6. Inhalation of rarefied air with exhalation into rarefied air.
7. Inhalation of compressed air with exhalation into rarefied air.
8. Inhalation of rarefied air with exhalation into compressed air.

If a pump and motor are substituted for the foot-bellows, the only inconvenience connected with office use of the apparatus can be obviated. The additional cost is not excessive, and it leaves the apparatus still well within the price of any other capable of doing the same work.*

* Mr. Metzger sells either the compression or rarefaction apparatus singly, with all necessary attachments, for \$30, and the double apparatus for \$50. With pump and electric motor, the cost would be increased from \$25 to \$35 additional. Codman & Shurtleff sell the resistance valves for \$5 a pair. Both manufacturers inform me that the time necessary to secure accurate adjustment of all parts of the appa-

My endeavor has been throughout to use the simplest and least expensive methods and mechanical devices, and I have tried to induce the manufacturers to reduce their prices to the lowest point, in order to secure the widest possible and freest possible diffusion of the method, which I look upon as one of the most valuable within the reach of the therapist. The therapeutic expedients most generally employed are inhalation of compressed air and exhalation into rarefied air, and I shall speak of these only and briefly.

In using the apparatus the patient should preferably stand, but he may sit if necessary. If a face-mask is used, it should be accurately adjusted over the nose and mouth, and made to lie close to the cheeks to prevent escape of air. A glass mouth-piece may be used instead of a face-mask in many cases; and it is unnecessary to close the nostrils, as the nose and mouth can not be conveniently employed together for forced respiration, and there will be no interference. Each patient should have his own mask or mouth-piece.

At first the smallest pressures only should be employed ($\frac{1}{70}$ or $\frac{1}{60}$ atmosphere), and these may be gradually increased according to indications. It is never advisable to exceed $\frac{1}{30}$ atmosphere. From ten to fifty or even one hundred respirations, occupying from five to twenty minutes, are made continuously, beginning with the smallest number and gradually increasing. After inhaling for a while, say ten minutes, a rest of ten minutes or more is taken, after which the process is repeated. This may be gone through with once, twice, or three times daily, according to indications. Where the patient has an instrument at his home, it is employed more frequently than when it is necessary to visit the physician's office in order to obtain the facilities.

The physiological effects of these expedients are very apparent. The effect upon the circulation of increasing the pressure within the thorax, as compared with the pressure upon the periphery, by inhalation of compressed air, is, in brief, to drive the blood toward the point of least pressure—that is, out of the thorax. On the other hand, the effect of exhaling into rarefied air, thus increasing the pressure upon the periphery, as compared with that within the thorax, is to drive the blood into the heart and lungs.

The effect upon the respiratory act is equally obvious. If the pressure within the thorax be made greater than that without, expansion will be effected with less muscular effort. The air-cells are fully dilated, and occluded areas of lung tissue are forced open where the pathological process is not of such a nature as to prevent this result. There is also pressure upon the inflammatory congeries of new cells and upon congested blood-vessels, tending still further to increase the amount of available lung tissue, and to a certain extent to relieve congestion and promote resolution of inflammation. It acts as pressure by means of the bandage acts in external inflammations. The activity of the pulmonary circulation being increased, as well as the activity of the systemic circulation, a greater volume of blood passes through the pulmonary capillaries in a given time, and is

exposed to a greater amount of oxygen under pressure—conditions which slightly favor the absorption of oxygen. As the increased volume of blood carries a greater number of corpuscles, theoretically it would seem that there should be a greater activity of oxygenation, and this has been confirmed by exact investigations conducted by Waldenburg, Speck, and others, and of which a full summary is given by Oertel in his admirable treatise. Subsequent expirations are freer and longer, and a greater amount of carbonic acid is given out, thus increasing pulmonary ventilation. Masses of desiccated secretion, desquamated epithelium, etc., are mechanically dislodged and their expulsion by cough facilitated, so that at first cough is increased. It is afterward lessened by correction of the conditions producing it. In the light of our present knowledge of auto-intoxications, the cleansing of the lungs from these decomposing masses of effete material must be considered of no little advantage.

Expiration into rarefied air facilitates emptying of the lungs, and, consequently, contraction of the chest is more complete. Subsequent inspirations are deeper.

By exhaling into rarefied air after inhaling compressed air we emphasize the difference between the two processes, and make an alternation of pressure-effects upon the vessels. All the effects before noted are thus heightened. An improved respiratory habit—that is to say, a fuller, freer, and more regular habitual respiration—is brought about, and the gain in vital capacity is very great. Not only is the exhalation of carbonic acid favored, but the subsequent absorption of oxygen is augmented on account of the greater extent to which emptying of the lungs has been secured. The alternating effects upon the alveoli increase the elasticity of the lung tissue. The alternate filling and emptying of the vessels stimulates circulation, increasing both rapidity and volume.

I am aware that doubts have been cast on the possibility of increasing the absorption of oxygen. Be this as it may, the effect clinically is to vastly stimulate and increase the nutrition of the patient. By careful observation I have been led to attribute this increase of nutrition to the ease with which the patient is able to dispose of the greater amount of nutriment which we administer. A patient overfed but not taking inhalations of compressed air, will not increase so rapidly in weight as one who is overfed and at the same time taking these inhalations. A patient taking inhalations of compressed air and not overfed will not increase in weight. I have thought that the great gain was due to the stimulation afforded to the secondary assimilation and to the general metabolism. Tissue respiration and the activity of the erythropoietic processes are increased by the increased activity of circulation, the heightened blood pressure, the augmented pulmonary gaseous exchange, and also by the pressure transmitted from the diaphragm upon the abdominal organs. Patients with pulmonary troubles who are taking iron will take larger quantities and bear it better. This is also the ease in anemia and chlorosis. One of the earliest manifestations of improvement is promotion of sleep, due partly to relief of cough and improvement of respiration; partly, perhaps, to improvement of metabolic processes and consequent elaboration of physiological hyp-

ratus in order to insure uniformity of pressures, and the present limited demand for the instruments, render it impossible for them to reduce these figures still further, as I have requested.

notics. There is also an obvious gain afforded by the exercise to the chest muscles, to which a portion of the augmentation in vital capacity must be attributed. Some four or five years ago I published a number of personal observations on the increase in the chest capacity from inhalation of compressed air. The results were not so remarkable as some of those published by European observers, but they indicated a gain of from twenty to thirty cubic inches in respiratory capacity, and from half an inch to an inch and a half in chest expansion. This was in patients in whom chest expansion and respiratory activity had been impaired by condensation of the lung from phthisical or pneumonic processes, or from the presence of pleuritic effusion. Pressure stimulates absorption of pleural effusions, and after the effusion has been absorbed the inhalation of compressed air tends to hasten the re-establishment of the normal action of the lung.

In two cases of asthma I have overcome the spasmodic dyspnoea of the acute attacks by the inhalation of compressed air at rather great pressure ($+\frac{1}{30}$ to $+\frac{1}{20}$ atm.). I suppose that the rationale of the effect is, in part, the paralyzing of the spasmodically contracted muscles of the bronchioles by the increased pressure of the air, and in part the relief of fluxionary congestion by direct pressure upon the engorged vessels, acting somewhat upon the principle of Monell's method of fixing the feet against the foot-board of the bed, taking a deep inspiration and holding it as long as possible.

The pneumatic expedient which has afforded the best permanent relief in asthma, especially when dependent upon emphysema, is, I think, expiration into rarefied air. This promotes collapse of the distended air vesicles and tends to relieve the lungs of the accumulation within them and, to a certain extent, to obviate paralytic distension in consequence of the presence of a greater amount of air than they should normally contain. It can not, of course, restore destroyed septa.

I have also thought, in common with those observers of largest experience in pneumotherapy, that the inhalation of compressed air had some good effect in the treatment of dilated heart from the pressure exerted upon the pulmonary vessels and cardiac chambers. Latterly I have employed in this condition expiration against pressure by means of the resistance valve, an expedient still more physiological. I have not used expiration into rarefied air in these cases, believing it to be counter-indicated, although it has been recommended by some.

There are many other obvious clinical applications of this method of treatment, but my object in bringing the subject before the college has been more particularly to show what can be done mechanically by a simple apparatus which may be placed in the patient's home, and not to refer especially to therapeutic uses. These would depend upon the views of the physician, and the experience which he obtains in the management of the method. The greater that experience, the more confidently will he extend it.

The effects are purely physical and mechanical, and easily deducible from a knowledge of the physical and mechanical effects upon normal circulation and respiration.

The one great advantage of the compressed-air machine

is that it will enable us to treat at home patients with phthisis or threatened phthisis; and especially to prevent the development of tuberculosis in patients having—perhaps with an apical catarrh as well—insufficient expansion, insufficient aeration of blood, insufficient nutrition, sluggishness of circulation, and impairment of the muscular apparatus of the thorax. These patients are often sent chasing around the world in the vain search for a restorative climate, but very few receive benefit, except, of course, such good as may be incidental to an outdoor life. There are, however, a very great majority of persons whose circumstances preclude the possibility of leaving home. I have elsewhere indicated how we may by a few simple expedients imitate many of the features of special climates.*

I have not had a wonderful number of cases under my care, so that I can not give any extended statistics. But every year I see several cases of phthisis benefited and three or four cases improved in a remarkable manner. There is one case in particular which is in my mind, because I received a letter from the patient to-day:

It is that of a Bostonian, thirty-two years of age, who spent last winter in Philadelphia and, although the weather was unfavorable and she had an intercurrent pleurisy, made a good recovery. She had a large cavity in the right lung and a smaller cavity in the left lung. All of her father's family except her father, and many of her mother's family, died of consumption. Her mother was said to have had consumption, but recovered under open-air life, forty years ago, and is hale and hearty. The father, who is some sixty-five years old, has fibroid phthisis, and is now breaking down. She was seen by Professor Da Costa at the beginning of the treatment and at the end, and he was able to verify both the pulmonary conditions and the great gain. When she began treatment her weight was 107 pounds; when she left Philadelphia in May it was 135 pounds, and in a letter received to-day she states that she now weighs 152 pounds. She had an evening temperature of 100.5° F., and all the troublesome symptoms of phthisis in the stage of softening. She went home with normal temperature and troubled only by more or less coughing, which has steadily decreased. The treatment was simply that of nutrition, overfeeding with nitrogenous and fatty aliments, whisky and hot water, aided by inhalation of compressed air, which enabled the increased quantities of food to be disposed of. The patient was kept out of doors as much as possible, and instructed to take deep and slow respirations continuously. Medication was principally symptomatic, for relief of cough, for disinfection of the alimentary tract, or for stimulation of digestion. She was given at different times creasote, iodoform, arsenic, amyl nitrite, and compound spirits of ether, with inhalations of terebene, chloroform, or ethyl iodide from the Yeo (perforated zinc) respirator, or from the Oliver nebulizer. I must not forget to add, in defense of a method of treatment now abused in neglect, as formerly in extravagant use, that the Bergeon injections of hydrogen sulphide and carbon dioxide served a useful temporary purpose in controlling a recurrent suppuration in the partially healed cavity of the right lung, following the pleurisy.

This woman evidently inherits a consumptive diathesis—but also a good recuperative force, which only required to be put under favorable conditions. She had a machine at her hotel, and she obeyed orders as to diet with religious exactitude.

* "Artificial Climatic Effects for 'Stay-at-Homes,'" "Philadelphia Med. Times," Feb. 6, 1886.

Patients who recover like this, stay recovered. I have two patients treated in 1883 and reported in 1885, who are still well; and some of my brother's cases referred to at the opening of these remarks have been well for twelve and thirteen years. Even patients that do not recover can be greatly improved. Life is not only prolonged, but it is made much more comfortable. And to return to what I deem the most important considerations, the treatment is essentially a home treatment, and it is within reach of those of moderate means.

ON THE PRINCIPLES OF THE MECHANICAL TREATMENT OF HIP-JOINT DISEASE.*

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HIP-JOINT disease, especially in childhood, may be described as a chronic tubercular lesion of the coxo-femoral articulation, with the major signs and symptoms in the initial stage suggesting a primary osteitis rather than a synovitis. The clinical history and the course of the disease, and the pathological conditions found both after excision of the head of the femur and after death, all tend to emphasize this statement. In discussing the principles which should govern us in the treatment of this lesion, I shall accept this as my text, for without some generally understood pathological basis it would be difficult to formulate any definite principles of treatment, either mechanical or otherwise.

Nor can we proceed intelligently without a glance, at least, at some of the more important of the signs and symptoms of the disease. And we will briefly consider some of them.

As is well known, an insidious and generally unexplained limp is almost always the first sign that claims our attention. And this very suggestive evidence of the change that is going on in the articulation is always, I think, accompanied by a still more suggestive and important indication—viz., an instinctive and involuntary muscular protection of the articulation. Long before pain or any apparent deformity appears these two important indices of hip-joint disease are present; and it is now, I think, generally accepted that the condition which accompanies these two signs, when typically expressed, is that of the first apparent stage of hip disease. My own experience has proved, and every year the proof has grown stronger and stronger, that this limp and this instinctive and involuntary muscular joint protection are necessary to establish a diagnosis of hip disease in the earliest stage. We all recognize that many other conditions may produce a limp and the muscular signs which simulate hip disease, but the differential diagnosis is not on the whole difficult, owing to the peculiar and expressive character of the involuntary muscular protection of the joint.

It is not assuming too much, I am sure, to say that these two signs—the limp and the instinctive muscular protection of the joint—have a peculiar significance. The limp may be interpreted as an instinctive effort on the part of the patient to avoid the increased inter-articular pressure produced by the simplest act of locomotion; and the second, the muscular protection, indicates that the muscles, acting upon the affected articulation, guard the joint when the joint lesion is exposed to even the slight traumatism of passive motion.

The whole expression of the articulation in the first apparent stage of hip disease is, if I may be allowed the expression, one of joint apprehension under certain tests and in certain conditions. It is very like the apprehension which accompanies the more advanced and painful stage of the disease, when any and every movement of the joint produces an agonizing pain—only the acute pain is absent, and the apprehension is less marked. In short, it is the first stage of a chronic disease, unmarked by pain or fever, and the whole expression of the affected joint under examination is that of a protest against traumatism, both the limp and the acute but slight muscular resistance crying out against the simplest functions of the normal joint—viz., gentle locomotion and a natural degree of articular mobility.

It is well known that this first stage of hip-joint disease—the stage of vulnerability—where the trouble has not fully developed, but where Nature has kindly given us ample evidence of the extensive mischief that is impending, the limp referred to as occurring in this first stage may disappear. The rest and protection which the patient instinctively gives the affected joint are sufficient in some cases to remove the limp and to modify the involuntary muscular protection. But the joint still remains vulnerable, and a major traumatism, like a fall or a blow, or even the constant repetition of the minor traumatism caused by locomotion, re-excites the latent pathological condition, and the limp returns and muscular protection again becomes pronounced. I have known this to occur seven times in one patient before the symptoms became so pronounced that a diagnosis was made, the surgeon in attendance being unfamiliar with the fact that a remission of the limp was likely to occur in the early stage. It has happened several times in my experience that the limp has disappeared without active treatment while the patient was under observation. I have watched these cases with much interest, and I have found that *the muscular protection of the joint did not wholly disappear, as the limp did*. It may be worth while to say that temporizing in these cases proved a mistake, for in every case, after a lapse of weeks or months, and in one case of two years, the symptoms reappeared with redoubled energy, and the lost time was not always wholly regained. In short, so long as there is a true pathological and involuntary muscular protection of a joint in the first stage of tubercular hip-joint disease (and also, I feel sure, in the second and third stages as well), we must imitate Nature's method and place the joint under conditions where it can receive no major or even minor traumatism.

And this, it seems to me, must be the fundamental prin-

* Read before the American Orthopædic Association at its third annual meeting, in Boston, September, 1889.

iple of mechanical treatment—viz., to protect the affected joint—and to secure for it that which Nature from the very beginning of the lesion attempts to secure—relief from traumatism. In the first apparent stage, that of the initial vulnerability of the joint, where the limp is slight and the muscular protection is only, perhaps, just perceptible, adequate mechanical protection of the affected articulation is just as imperative, in my experience, as it is when the disease is well defined and fully developed. All of the cases that I have watched where rest—simple rest in bed—has been pursued as the only treatment, have failed to obtain permanent relief. I have watched cases of this kind long enough to know that those which I have thought were cured, and if I had been writing an essay at the time they passed from active observation I should have reported as cured, have all, after a longer or shorter time, relapsed, if prompt relief from traumatism was not given by apparatus efficiently applied.

From a mechanical standpoint, therefore, the first object of treatment should be to modify or to absolutely remove, if possible, traumatic contact of the opposing joint surfaces in hip-joint disease; for, however much the medical profession may differ regarding the influence of traumatism as applied to the ætiology of this disease, I think none will deny its baneful influence after the lesion is once established in the joint. The second object, having placed the patient under the best possible local (joint) conditions for repair, is to surround the patient by those hygienic influences and to administer those remedies which will aid Nature in eliminating a tubercular disease. On this point I need not dwell. I think this association as a unit will agree that a patient with tubercular disease in any part of the body will do better, for example, in the pure air of the Adirondacks than in the wards of a hospital. And if the patient has hip-joint disease he will do better walking about in the fresh air in an efficient protective apparatus properly applied than if he be confined to bed with or without a protective splint.

To return to the first object—that of securing a modification of the traumatic contact between the surfaces of a tubercular hip joint. We have seen how Nature instinctively protects the diseased joint in the first stage. In dealing with the more difficult problems of the second stage (that of deformity) it will be well if we again look to Nature's methods and see what she attempts to do; and we will be wise if we imitate, if we can not always accurately follow, her example.

The first apparent stage of hip disease has been referred to. This early initial stage is one where, in my experience, it is comparatively easy to secure a perfect cure of the disease without deformity or without any serious modification of joint mobility. If the first stage, however, be permitted to go unchecked, as it usually does in the absence of any urgent symptom, the second stage, that of deformity, appears sooner or later. The signs rather than the symptoms of the stage of vulnerability have passed unheeded, and Nature has narrowed day after day, week after week, perhaps even month after month or year after year, the arc of femoral movement in all directions, until in

many cases the results are apparent ankylosis of the articulation with a marked deformity. This deformity is apparent first as a flexion; then, as a rule, follows abduction, and this is usually accompanied by a rotation outward of the femur. After a time adduction and rotation in the opposite direction may ensue, but flexion is always present.

It is not only possible, and in many cases more than probable, that a good result may be obtained with free joint motion in the second or deformity stage. But the golden opportunity has passed when the limping gait becomes emphasized by a deformity, or, in other words, when the muscles, having placed the joint in the position of the least traumatism and of the greatest ease, instinctively and involuntarily protect, to the best of their ability, the diseased part or parts.

In the early part of the disease, and oftentimes in the second stage (before true adhesions have formed), if we administer an anæsthetic and pursue its effects until a profound narcotism is produced, we find there is little or no resistance to full and free joint motion. As soon as we temporarily interrupt the reflex arc, and relieve the muscles of their duty, we find the muscular evidence of hip-joint disease absent—*i. e.*, there is no resistance to free joint movement and there is no deformity.

Nature, in short, in hip-joint disease is producing in her own way an involuntary muscular splinting of the joint—the tense and shortened muscles, in a typical case, making an almost perfect coaptation splint. But there is this difference between the conventional coaptation splint of surgery and the involuntary muscular splint of hip disease: The force of the former is exerted, as in the treatment of a fractured thigh bone, for example, *laterally*, or in a direction which lessens the circumference of the splint. On the other hand, in hip disease the force of the muscular splint is exerted *longitudinally*—*i. e.*, in the direction of the long diameter of the contracted muscles, or in that direction which throws the head of the femur against its socket. This muscular splint in hip-joint disease simply avoids the major joint injury of motion and pressure combined by substituting for it another form of articular injury—viz., an inter-articular pressure which limits motion and retains the joint by means of this inter-articular pressure in that position which, unaided by art, inflicts the least injury to the diseased joint. The limitation of motion in the joint is accomplished only at the expense of an intensified joint pressure—a pressure which is much further increased by any form of mechanism which uses the femur as the long arm of a lever to correct the deformity.

When the second stage is reached, locomotion becomes very difficult, the whole body swaying around a deformed joint, and each successive traumatism—even that of walking with the aid of crutches, and surely that of an scientifically applied apparatus—produces a fresh grazing field for the tubercular bacilli. The transition from the second to the third stage (that of joint disintegration) is so gradual that it is difficult to draw the line. But, sooner or later, if the disease be not arrested, a more or less rapid joint disintegration ensues. The femoral head becomes smaller and

smaller, the acetabulum becomes concentrically enlarged, perhaps perforated, abscesses may form, and finally, after the disease has run its course, the ultimate deformity and disability with which we are all familiar appear. Even in this last stage the muscles are tenacious of articular control and refuse to grant the full movement the altered joint surfaces permit. The muscles are only quiescent when in those exceptional cases, and after years of struggle, actual ankylosis occurs, or the tubercular process is wholly ended.

It seems perfectly apparent to me that the deformity of the second stage is due to an involuntary muscular action, and that the deformity of joint disease, irrespective of the question of whether there is a synovial effusion or pus within the joint capsule, represents Nature's position of greatest ease. This muscular coaptation splint is Nature's only way of modifying traumatic contact of the opposing joint surfaces, and this modification is secured by a change of position. It would seem that this muscular effort or splinting is more apparent in some cases than in others.

At the clinic of the New York Orthopædic Dispensary and Hospital we see quite often cases of very considerable and sometimes very tense accumulation of pus and tubercular material within the capsule of the knee and ankle joints where there is little or no interference with articular mobility. The deformity in these cases exists only in joint outline. The mechanical relations of the opposing joint surfaces are not interfered with and there is little or no muscular effort, either voluntary or involuntary, to control or limit the movements of the affected articulation, and pain is wholly absent. The signs of disease (there are no symptoms present at all) which present in this class of cases at the knee and ankle do not seem to indicate an osteitis; on the contrary, the synovial membrane is distinctly diseased and the lesion is probably confined to this membrane, and perhaps superficially to the cartilage also.

In this class of cases, where the synovial membrane is apparently much affected and the osseous tissues have escaped major injury, Nature makes no effort to limit joint motion by muscular action. I have attempted elsewhere to explain why this is so.* I merely desire on this occasion to call attention to these two classes of chronic tubercular joint disease—the synovial and osteitic—and to say that where the synovial membrane is primarily and solely affected at the knee and ankle, the mechanical treatment should be different from that which will be mentioned in this paper on tubercular disease of the hip.† And I also wish to call attention to the fact that in hip-joint disease we are always met by the initial symptoms of a bone lesion rather than those of a simple synovial disease. Whether we have chronic synovial disease at the hip in the early stage of the trouble, it is impossible, from a clinical standpoint, to say. In the well-marked cases of uncomplicated synovial disease at the knee and ankle, the only evidence of the lesion, as already remarked, is an objective one—a

synovial swelling—a sign that for anatomical reasons is not always available at the hip.

The cases of synovial disease at the knee and ankle are, however, much less frequent than those which at the same articulations from a muscular standpoint are the perfect analogue of the muscular and deformity conditions found in hip disease. In these latter cases there is no essential change in joint outline, no evidence of a distended or swollen capsule or synovial change, but rather a spurious ankylosis induced by the same muscular conditions which produce the second stage of hip-joint disease. Here, in this latter or osteitic class of cases at the knee and ankle, it is easy to interpret Nature's effort to modify the traumatic contact of the opposing joint surfaces, and to understand that in the osteitic condition Nature abhors motion and uses every effort to restrain it, and to restrict it within certain limits. Within the limit set by Nature, motion I believe to be harmless, and hence it is that it seems wrong to immobilize a knee joint, for instance, with simple, uncomplicated synovial disease of the tubercular variety. But if we attempt, in the osteitic form of the disease, to pass beyond the limit set by Nature, or if we try by unscientific means to secure a better position for the distal half of the joint when Nature by her every expression says "No," we ignore the valuable lesson which she teaches us and inflict more injury, in many cases, upon the diseased articulation than all our boasted orthopædic science can relieve. And a very wide difference of opinion among both orthopædic and general surgeons would be bridged, I think, if the fact were recognized that where there is some or even a little motion at a diseased joint, true immobilization is not necessary. But motion under these circumstances should be controlled within the limit set by Nature. A joint that is practically immobilized by the muscular coaptation splint will recover motion under the absolute fixation of traction, as has been proved very many times.

I have seen on many occasions, especially in the large general hospitals of this and other countries, irreparable injury inflicted upon a slightly diseased hip joint by useless manipulations and tests, both with and without anæsthesia. I have known apparently curable cases to be rendered hopelessly incurable by an ill-advised attempt to rectify the deformity of hip disease in the second stage, when there was little or no thought bestowed upon the plain expressions, muscular and otherwise, of the pathological condition. The absence of pain is too often made the criterion of whether a patient with hip disease should be subjected to certain tests and certain forcible methods of treatment, the decision generally being that if there is no oral expression of pain the joint would stand almost any desired force without injury. My own experience leads me to say that very frequently the patient in whom there is an entire absence of the oral expression of pain is the one who should be the most carefully and conservatively treated, and about whom should be thrown the most careful safeguards against traumatism. No one, for example, would be likely to advise the use of forcible measures to remove deformity in a case of hip disease when the patient was in the exquisitely sensitive stage; and yet many patients, where this acutely

* "The Etiology and Pathology of Chronic Joint Disease." "A Series of American Clinical Lectures," vol. iii, No. 6.

† "A Lecture on the Prognosis and Treatment of Ankle-joint Disease." "Annals of Anatomy and Surgery," May, 1882.

sensitive stage is but a step removed, are subjected to unnecessary and in many cases to unscientific measures of treatment. My experience leads me to say that if there is a condition where preventive measures can be applied, where much mischief can be prevented, where it is our duty to anticipate the next bad phase of the disease and to avoid it, it is in hip-joint disease and allied affections; and he who passes by unheeded the plain indications, or he who with a limited experience maintains that operative surgery can accomplish in the treatment of chronic joint disease more than Nature, conservatively assisted and protected, has yet to learn the pleasure that can be derived from a patient and diligent conservative treatment of a diseased joint.

If, then, we are to aid and imitate Nature, rather than to force her, in the treatment of hip-joint disease, and we have interpreted aright the various phases of this condition, there need be no hesitation as to the course to be pursued.

In the first stage—that of the earliest noticeable vulnerability of the disease—when there is a slight limp and an almost normal arc of motion, it is comparatively easy to protect the articulation from traumatism, because nature affords a wide range of movement within which, with scientific mechanical protection, it would be difficult to apply any traumatism to the joint. There is no articular deformity present and the muscles are not tense and irritable, except as the vulnerable parts are exposed to contact or pressure. While it would seem that the mechanical treatment of these cases is simple, it is best to take no risk, but to make the artificial joint protection as complete as possible. The major difference in the detail of treatment between the first and second stage is that while in the second stage we must overcome or greatly modify the deformity before permitting locomotion—and a shorter or longer period of recumbency is necessary to accomplish this—in the first stage we have no deformity and the patient can at once assume the upright position and walk about in a properly constructed apparatus. When the deformity of the second stage is removed, locomotion—also with the aid of proper apparatus—is to be advised, and within certain limits encouraged.

It is therefore the second stage of hip-joint disease that demands our principal attention, for in this stage we are met by the most expressive evidence of the disease and the most important problems of treatment, and it is in this stage that a single error may undo the work of previous weeks or months.

Let us, for example, take a case of hip-joint disease in the second stage, where there is a marked deformity and where there is a very considerable modification of articular mobility, and attempt to determine the indications for the mechanical protection of the joint. We need not stop to consider whether pain or abscess are present. The indications from a mechanical standpoint are the same whether these conditions are present or absent.

The principal apparent expression of the joint lesion is the deformity. It is so important, both to the mind of the patient and his friends and, in many instances, to the surgeon himself, that the grave lesion of which it is the simple index

is lost sight of, and the mistake is very frequently made of hastening the reduction of the deformity at the expense of the articular disease itself. It is here that errors are most frequently made, and it is here that we should be prepared to use, with all patience and diligence, the most scientific and efficient means at our disposal. I have often remarked that if hip-joint disease was unaccompanied by its expressive deformity it would lose its principal terrors for both the surgeon and patient; and he who would strive for the best attainable result in this formidable complaint must always remember that hip-joint disease is no trifling affair, and that it were better—far better—to use no mechanical treatment at all than to attack the disease by an immature and unscientific effort, by apparatus or otherwise, simply to modify one of its signs. I have no doubt at all that much irreparable mischief and that many avoidable abscesses and death itself have been occasioned by meddling mechanics in the treatment of hip-joint disease, and I know of no problem in orthopædic surgery, unless it be that involved in the mechanical treatment of true lateral curvature of the spine, which requires the expenditure of more thought and effort than that which claims our attention in the treatment of hip-joint disease in the second stage.

Whatever may be the primary cause of the deformity in the second stage, no one, I think, doubts the important part assumed by the muscles in the production of the malposition, as well as in maintaining it after it has once been produced. And no one who has examined many cases of hip-joint disease in the deformity stage can doubt that the principal resistance to the reduction of the deformity lies in the muscles, which are on guard all the time to protect the joint from undue movement, which, in joint language, is synonymous with the slightest traumatism. The first and the most important step in the treatment of the disease is to remove this element of trauma from the joint. This simple statement underlies the whole problem of the value and of the necessity of mechanical treatment, and I have no hesitation in predicting that that method which best subserves this indication is the one which will outlive all the others.

If in the second stage the thigh is flexed and abducted and we attempt by manual effort to overcome either deformity, even if guided by the intelligent hand of the most experienced orthopædic surgeon, we find that the muscular resistance can not be overcome by any ordinary effort, and that nothing but an extreme degree of force, which inflicts intense pain, will modify the acquired position of the femur and bring it into the so-called straight position. There can be no disputing that this resistance to the reduction of the deformity, and the pain which we inflict while doing so forcibly, mean that the joint, in its sensitive and apprehensive condition, demands adequate protection, and they mean as well, also, that he who would afford his patient the most complete relief and the best attainable result will study these and other things which the joint almost talks to us about, and make available the lessons which they convey.

It seems perfectly apparent to me that a joint in the condition above described needs, as a first step toward recovery, an essential modification of the traumatic contact

between the opposing articular surfaces*—not in the position we wish it to be in, but in the position which Nature has selected.

No one who has seen a child suffering with the agonizing pains of hip-joint disease, who has been crying night after night with the lancinating neuralgia of an inflamed hip joint, go to sleep soon after the thigh has been held quietly but firmly in the chosen position of the disease, can doubt the value of the relief afforded by manual support and protection intelligently applied to these cases. The certainty of the relief afforded by this simple test is in no way diminished by suddenly or even gently relaxing the support given by the hands of the operator. The quick and apprehensive cry that follows, and the shiver that runs through the frame of the little sufferer, give positive evidence of the value of properly applied protection in these conditions. It is, I think, our uniform experience that when pain is present in these cases it affords an infallible guide and an unerring indication as to treatment. My own experience goes still further, and I am prepared to say that if pain were present uniformly in the second (or even the first) stage of hip-joint disease, our results would be better and sooner attained. My experience further demonstrates that those who aim for the best attainable results are those who treat their patients as if there were a slight pain present all the time, and who follow them up with the same careful attention they would bestow upon a joint that is slightly sensitive; for the less sensitive joints are none the less removed from the dangers that threaten the painful ones, and the feeling of false security that comes to both the patient and the surgeon, when pain is not present, leads to many errors of treatment and to many bad results. In a well-applied portable apparatus, embodying correct principles, the patient is apt to forget that he has any joint disease, and the surgeon is prone to hope, if not to think, after a while, that the worst is over and that a favorable end of the disease is very near. It is under these circumstances when the symptoms are latent only, and when the disease, though either stationary or progressing toward recovery, is far from the desired end, that it is the duty of the surgeon to in no way relax his attention, for the period of convalescence in hip-joint disease is in many respects the most perilous.

I think I am wholly warranted in saying that, whether pain is present or absent, we should adopt from a mechanical standpoint the best-known means of modifying, as a first and as the most important of all considerations, the traumatic contact of the affected joint surfaces.

In the experiment referred to above, when manual support is given to a painful joint, it is found that simply supporting or fixing it by the hand or hands gives little or no relief. If the lever principle is added and it is attempted to fix the joint in that way, the pain is increased. But as soon as a traction force is applied—the body forming a counter-traction—relief is almost instantaneous. And it is found, in typical cases, that the pain returns just as soon as the traction is relaxed or modified. This experiment has been

made by us all, in many cases and under all kinds of circumstances, and it is among the well-demonstrated facts of orthopaedic surgery. If, now, continuing our tests, we attempt to alter the relation of the joint surfaces to each other—*i. e.*, attempt to correct the deformity even while exerting this traction or pulling force—we find that the pelvis moves with the femur, so strong, so active, and so incessant is the muscular splinting of the joint. We also find that when the change of position involving the use of a lever is attempted the pain at once returns, and the more force used in making traction, save in the position which gives the patient comfort, the more the patient complains and the greater is the pain inflicted.

Let us pursue our experiments with manual traction still further. Let us keep up the traction for an hour or two, or even longer, in the direction which brings relief, as I have done on many occasions when, with no apparatus attainable, sleep could only be purchased by manual traction. What happens? Little by little, as the trauma, which has been exerted upon the joint surfaces for the preceding weeks or months, is relieved, the muscles relax their tension and it becomes possible to obtain an increase in the joint motion without inflicting pain. After traction has been kept up persistently and intelligently for an hour or two under these circumstances, the patient will even sleep for a short time without any traction at all. But if we desist entirely and allow the limb to again resume its chosen position, the muscular tension soon returns and the joint will become as rigid and as painful as before, under the influence of the muscular splinting which is so characteristic of both the painful and non-painful conditions.

These experiments have doubtless been unconsciously made by us all, not only with the hand, but by properly constructed and applied traction apparatus. It is an almost daily experience for us all to reproduce with traction apparatus the effects of manual traction, and when traction apparatus is properly applied the joint, supported and protected in Nature's indicated position and relieved from the constant traumatism of its own effort, begins to mend. The muscles, relieved of their duty of splinting the joint, relax their grasp. The deformity soon becomes modified, and after a few days or a few weeks the deformity is removed or sufficiently modified so that the patient can walk about in the open air and gain that great advantage which properly applied portable traction apparatus gives—*viz.*, gentle exercise and locomotion in the open air, with a minimum of restraint as applied to the general functions of the body.

We may now formulate some of the conclusions applicable to the conditions found in hip disease, and its mechanical treatment.

1. The initial signs of the first stage of hip-joint disease are, as a rule, a limp and an involuntary muscular protection of the articulation.

2. The involuntary muscular protection frequently, if not always, precedes the limp. It also precedes the pain, which is generally a very late symptom, occurring almost always in the second stage.

3. The more insidious the approach of the disease, the greater, as a rule, is the necessity for ample protection and

* Dr. E. G. Brackett, of Boston, has proved that in childhood distraction of the hip joint is an evident fact. *Vide* "Boston Medical and Surgical Journal," vol. cxxi, No. 17, October 24, 1889.

prolonged observation. This is particularly true of an insidious and inveterate muscular protection of long duration which scarcely varies from month to month, and, while limiting the joint motions only slightly in all directions, is unaccompanied by any evidence of pain, except as the femur is used as a lever to overcome the muscular resistance.

4. The first indication from a standpoint of mechanical treatment is to remove as far as possible all traumatic influences from the diseased articulation.

5. This can best be accomplished by some form of apparatus which possesses the power to directly modify, or to wholly remove, interarticular pressure.

6. Our efforts to relieve the pain of the acute stage are abortive until a traction force is used.

7. The deformity of hip-joint disease is due to an instinctive and involuntary muscular splinting of the articulation, which muscular protection becomes modified after efficient traction is applied.

8. The presence of the muscular splinting of hip disease necessarily indicates the existence of a greater or a less degree of interarticular pressure in those positions where muscular contraction resists the reduction of the deformity.

9. This muscular splinting exists very often to a very great degree without any pain at all, and in these cases, as well as in those where pain is present, traction is necessary to adequately protect the diseased articulation.

10. The muscular signs of hip disease, especially the instinctive and involuntary muscular protection, are by far the most important, both as applied to diagnosis and prognosis in hip disease, taking precedence over pain.

11. Clinical experience proves that all the important signs and symptoms of hip disease are at once modified by intelligently and scientifically applied traction, the modification of the symptoms and signs being in almost direct ratio to the efficiency of the protection thus afforded the affected articulation.

12. Where there is no deformity present, a portative traction apparatus may be applied, and the patient may at once assume the erect position (ample protection being afforded the diseased joint) and walk about in the open air almost without restraint.

13. If the disease permits a certain amount of motion at the affected articulation, motion within the limit set by Nature is not harmful. It is only the cases that Nature attempts to immobilize by an emphasized muscular splinting that require artificial immobilization, and these latter cases acquire motion under the immobilization produced by traction applied with this end in view.

14. Where deformity is present, the patient should be placed in the recumbent position, with the affected member at rest upon an inclined plane in a proper traction apparatus. Both the traction apparatus and the inclined plane should be so constructed that any desired position may be obtained without disturbing the patient or the affected joint.

15. The deformity assumed by the involuntary muscular action indicates approximately the position in which we should make our initial mechanical traction.

16. Clinical experience proves that to make traction

"in the line of the deformity" is an error. We should rather say that traction is to be made *in the line of comfort*, and this means that the angle of traction should be less than that of the deformity—*i. e.*, the joint should be placed in a position of greater flexion than that which is the exponent of the disease. By doing this we make traction wholly in a direction which modifies interarticular pressure, and we avoid the error of the lever apparatus, which makes a fulcrum of the diseased articulation to overcome the deformity.

17. The time necessary to overcome the deformity should always be given with the patient recumbent, as above described, and the line or angle of traction should be changed, not arbitrarily from day to day, but as the relaxation of the muscular splinting allows a change of position without any injury to the joint.

18. As soon as the deformity is reduced or sufficiently modified, the traction apparatus arranged for locomotion should be applied, and the patient should be allowed to have the benefit of gentle exercise in the open air, without interfering by crutches or other unnecessary apparatus with the normal functions of the rest of the body and the unaffected members.

19. Traction during recumbency with an apparatus that has a strong pelvic band and double perineal pads is superior to the weight-and-pulley traction, inasmuch as the former gives us complete control over the pelvis as a point of counter-traction.

20. If the joint is very painful and sensitive—even if there be no deformity—the joint should be given the extra rest which recumbency, traction, and a relaxed ilio-psoas muscle bring. The presence of a cold abscess is not a contra-indication for locomotion in a proper portative traction apparatus, nor are several sinuses a bar to outdoor treatment with a proper protection splint. The only contra-indications to locomotion and outdoor life are a very sensitive joint, an acute phase of the abscess, and the existence of a considerable deformity.

21. Any apparatus embodying the lever principle alone—that form or those forms of apparatus which make the femur the long arm of a lever to "pry" the joint straight—are, I believe, very strongly contra-indicated, except in those cases where the articular adhesions prevent the reduction of the deformity by traction. Luckily, these cases are rare. When met with, however, I believe that it is better to reduce the deformity at once under ether, and then to apply efficient traction, rather than to subject the diseased joint to the prolonged and irritating traumatism of a powerful and constant leverage.

After reviewing the whole field, it seems to me that we can not avoid the conclusion that we should use traction as a means of relieving the self-imposed muscular traumatism of the joint, not only to meet the very evident general mechanical conditions, but to relieve the muscles as well. The muscles were long ago tired out before the painful stage appears, and we should appreciate the constant strain the muscular tension imposes upon the central nervous system. It has been taught that we should make traction to "antagonize the muscular spasm." I think this is an error. It

seems rather that we should rest the joint by giving it immunity from the traumatism of inter-articular pressure, and then await the gradual yielding of the muscles. This will soon permit us to place the distal part of the joint in the desired position, and we need not inflict the slightest injury to the joint if we proceed carefully. I am quite sure that this object can be secured by the intelligent use of traction and counter-traction.

And the mechanism of this traction apparatus should be so arranged that it can be adjusted to any desired position without removing it from the patient. We can then cause the apparatus to follow the thigh as it falls into position and not force the thigh to follow the apparatus, as we must always do if we use the lever apparatus without the traction attachment.

The objections to any form of apparatus which embodies the principle of the lever alone are very great. It seems to me that this principle as applied to the treatment of tubercular joint disease in the light of the pathology of the disease, in the light of the muscular conditions which accompany it, and the unerring certainty with which the lever aggravates the already existing traumatism, is crude and unscientific.

Those who favor and use the lever apparatus always insist upon the necessity of removing the superineumbent weight of the body from the diseased joint. They forget or ignore the fact that the underlying articular pressure produced by the muscular splinting of the joint is just as injurious, if not more so, than the superineumbent weight. It is easy enough to remove the superineumbent weight with crutches (but this alone will not cure the disease), and it is also easy to gain position by making the femur the long arm of a lever. The muscles must yield if the lever force is sufficient, but the joint already disabled will suffer. It will be interesting in the future to see the results produced by this lever plan of treatment.*

But if, on the other hand, we can successfully give the affected joint not a fictitious "rest," not a pseudo-"immobilization," not a fallacious "fixation," but by supplementing the artificial joint protection, be it what it may, with an additional apparatus or attachment which will imitate the action of manual traction, we shall accomplish the end that Nature seeks by her ceaseless and involuntary muscular protection in an osteitic joint disease. We must do more than "rest," "immobilization," or "fixation," as described by some writers who use these terms, can produce, because all these "methods" have for their aim, not so much the avoidance of traumatic contact between the opposing joint surfaces as the maintenance of a traumatic contact which already exists and which must necessarily be emphasized by the application of the lever principle or of any of the so-called "fixation" splints. As long as the muscles guard-

ing a diseased hip-joint are in a state of ceaseless contraction, as long as they are actively and instinctively engaged in securing for the diseased articulation the best protection they can give, our mechanism for the relief of the joint should embody some means of successfully combating the effects of their incessant action. And we should always be prepared to produce true physiological rest for the over-tired muscles and the vulnerable articulation; we should be able to secure real immobilization of the joint when it is indicated, and we should always be ready to give the joint absolute fixation when it seems necessary, just as we should permit and even encourage motion when the joint condition does not contra-indicate it.

And, as I look over the entire armament of orthopædy, I know of no mechanical method of accomplishing all that we desire in these difficult and tedious cases of hip-joint disease except that which imitates the simplest method of relieving an inflamed joint—viz., manual traction.

And I feel that if this principle of traction be scientifically utilized and adapted to the needs of each individual case there is no doubt that we shall give to our patients suffering from hip-joint disease and allied articular affections the most perfect mechanical protection available, which is, after all, the *sine qua non* in the treatment of chronic joint disease.

A CASE OF TUBAL PREGNANCY.

By E. D. FERGUSON, M. D.,
TROY, N. Y.

The following case presents some points of interest:

The patient, a woman, thirty-two years of age, nullipara, married over three years, was first seen by me in consultation with Dr. Van Vranken, of West Troy, on October 5, 1889. The following are among the facts then determined: The last menstruation was on July 12th; there had been some slight bloody discharge from the vagina recently; she regarded herself as pregnant; she was and had been without fever or notable constitutional disturbance; she had suffered somewhat from nausea; on September 15th she was suddenly seized with pain to the right of the hypogastrium, and the pain had continued with varying intensity up to the time of the examination, so that she had practically been confined to her bed; at no time had there been a condition which could properly be called *shock*.

Examination showed a tumor of about the size of a small orange in the right broad ligament; the uterine tubes seemed by palpation to be about twice its normal dimensions, but was not notably displaced toward the left; there was moderate tenderness over the uterus and over the tumor in the right broad ligament. The diagnosis was right tubal pregnancy with probable rupture downward between the layers of the broad ligament, and proper explanations were made to the husband with a view to an operation. In the mean time electricity (galvanism) was directed.

I did not see the patient again until October 11th. I found but little change, though the tumor in the broad ligament was apparently somewhat larger and quite as firm. There had been two or three paroxysms of severe pain in the region of the tumor, but still no shock or collapse, and no retro-uterine mass. The patient was now informed as to her condition, and, as she accepted the advice for the removal of the tube, arrangements were accordingly made, and the operation took place on the fol-

* In "An Analysis of Twenty-one Cases of Hip Disease treated by the Thomas Splint," by Mr. John H. Huddleston ("Boston Medical and Surgical Journal," Oct. 24, 1889), it was found (the Thomas splint being a typical "lever-fixation" splint) that the general results were as follows: "Good position with little flexion and adduction, but great shortening, great atrophy, and very constant elevation of the trochanter above Nélaton's line with a remarkable percentage of abscesses."

lowing day, Saturday, October 12th, at 11 A. M. On opening the abdomen, exit was given to a large amount of very dark clots and fluid blood. The amount could only be estimated, but there was more than two pints, probably not more than three pints, of fluid blood and clots.

The layers of the right broad ligament were separated and the space occupied by blood clots and placenta. Apparently the final rupture into the peritoneal cavity had occurred through the upper and posterior portion of the tumor. There was a broad pedicle and the cobbler's stitch was used. The fetus, which had escaped from the sac, was advanced three months in gestation.

There was considerable shock following the operation, which lasted one hour from taking her to the table till she was again in bed, but reaction was prompt, and when I saw her at 3 P. M. she was comfortable and cheerful, and everything promised a favorable progress. I had requested Dr. Rulison, who was caring for her during the absence of Dr. Van Vranken, to draw her urine at 6 P. M., and his report that he got less than a tablespoonful of urine had an ominous significance. It having been an operation of necessity, no examination of the urine had been made, but, had I known of pre-existing renal trouble, I should probably have proceeded with the operation. I saw her again at 9.30 P. M., and the catheter brought only a teaspoonful of bloody urine. Though she was free from any evidence of shock or collapse, still there was a manifest tendency to somnolence that suggested uræmia, and in fact that supervened soon after midnight, and she died about 4 A. M., about sixteen hours after the operation. An autopsy was made about eight hours after death, and some points then noted deserve attention. The peritoneal coats of the intestines were quite congested at the time of the operation, presumably from the irritating effect of the intraperitoneal blood, but at the autopsy they presented a normal color and smoothness. The stump was already covered in by firm adhesions to contiguous parts through means of plastic lymph, and the peritoneal surfaces of the incision were so adherent as to require notable force in their separation. During the operation care had been taken to avoid bringing the right ureter into the field of the ligatures, and it was found undisturbed. Both kidneys were in the congestive stage of acute nephritis and presented no evidence of chronic disease. The urine showed "blood casts" and a large amount of albumin. Whether the use of chloroform instead of ether will lessen the mortality from renal changes following abdominal operations seems to me an open question as yet. This case lacks in having no record of the state of the urine before the operation. The death was due to uræmia, more rapidly fatal, doubtless, on account of the depression due to the operation.

The points of special interest to me were the large amount of blood (and clots) in the abdominal and pelvic cavities which must have been there two or more days before the operation, and yet there was no history of notable shock, and no physical signs of its presence in Douglas's *cul-de-sac*. There was sufficient tympanites the day preceding the operation to obscure the diagnosis of its presence by abdominal palpation or percussion.

In addition, the speed with which the pedicle may be covered up and closed in by plastic material was very striking. Though the patient survived the operation only sixteen hours, the stump was so firmly closed over and shut in as to preclude any probability of hæmorrhage from that source. This result, however, may have been hastened in this instance by the pre-existing state of irritation due to

the intraperitoneal blood. Fortunately, recent experience in laparotomy affords a smaller percentage of opportunities for such examinations.

The uterine walls were found over an inch in thickness.

TWENTY-THREE CASES OF TYROTOXICON POISONING.

By D. M. CAMMANN, B. A., M. D.

ON March 14, 1889, seven children in a large institution in this city were taken ill. In the following five days sixteen more became ill with the same symptoms. One of the children was four years old, two about six, and the others from seven to thirteen or fourteen. The cases varied in severity, but were all similar in character. The symptoms were frontal headache, nausea and vomiting, diarrhœa, and high temperature. The children were ill for two or three days and then recovered, with the exception of pallor, lasting for a variable time. Several, whose temperature was high, had four or five grains of the sulphate of quinine, but the others had no further treatment than rest.

The headache in some of the cases was severe, lasting for a day or two and then slowly passing away; others had little or no headache. With none was the vomiting severe. Some vomited once or twice and then not again; others two or three times within twelve or fifteen hours; others had nausea but no vomiting; a few had neither nausea nor vomiting. Nearly all had slight diarrhœa—from two to five or six passages within twenty-four hours. In no case did the vomiting or diarrhœa last for a longer time. The highest temperature was 105° F. in the mouth. The temperature in most of the cases ranged between 102° and 104°. It gradually declined in two or three days, being higher at night than in the morning. Two of the patients complained of pain over the stomach, but it was not severe, was not increased by pressure, and soon passed away. The pulse was rapid, small, and compressible. The skin felt as usual—neither moist nor dry. The tongue was slightly coated, and in some cases clean at the tip and sides. None of the patients showed marked prostration, and some, after lying still a few hours, were up and moving about.

The highest range of temperature was in the older children, of eleven or twelve years of age, the temperature of the younger ones not usually running quite so high. The relation between the height of the temperature and the vomiting and diarrhœa was not very evident, but, as a general rule, those who had most vomiting and diarrhœa did not have the highest temperature, and *vice versa*. In several of the cases in which an examination was made the spleen was not enlarged. At the time there were two adults in the institution with symptoms of malarial fever. One of the boys, aged twelve, who was taken with the symptoms described, developed double pleuro-pneumonia.

The system of drainage and water supply was of the most perfect description, the plumbing having been thoroughly renewed within a couple of years, and repeated examinations by experts had failed to reveal any defect. The dietary was of the simplest kind, and was nearly the

same as had been used for the last twenty-five years. During that entire period the institution had been remarkably free from diseases of the gastro-intestinal tract, and even during the summer months such cases had been extremely rare. No change in the diet had lately been made.

About one hundred and fifty children were in the institution. Those that were attacked were scattered pretty equally through the different dormitories. The attacks did not, in the majority of cases, commence immediately after a meal, but some commenced in the morning before breakfast, the patients having eaten nothing since supper the previous evening; others commenced in the middle of the night; others immediately before supper, the patients having eaten nothing since a midday dinner; others commenced almost immediately after a meal.

An examination was made by Dr. Edson, of the Board of Health, who recognized the milkman's name as one with whom the board had formerly had trouble. Thirty-six persons who received milk from the same farm had been poisoned. These cases were reported in a paper read before the Ninth International Medical Congress. Tyrotoxin was not found in the milk at that time, but there was ample reason to infer that this substance or some other ptomaine was the cause of the poisoning. The symptoms were the same as those of the cases in our institution. After the milkman was changed no new cases occurred.

Specimens of the milk used in the institution were examined by the Board of Health, and two per cent. of water was reported in one and five per cent. in another. No tyrotoxin was discovered. After a careful investigation no other cause for the trouble except the milk could be found. The molasses was suspected; but, besides its having been in use from the same barrel some time before the trouble began, cases occurred several days after it was stopped. On analysis, it was found to contain only a trace of copper. Other articles of diet were in a like manner excluded as a cause.

We can fairly say, I think, that these cases were caused by tyrotoxin or some other ptomaine, although the poison was not found. It is not my purpose in this paper to consider how tyrotoxin and other ptomaines are generated or the precautions necessary to prevent their production, but rather to glance at the clinical aspect of the cases that have come under my notice.

Many cases have been reported, both in this country and abroad, of poisoning from ice-cream, pies, puddings, etc., in which the symptoms were intense gastro-intestinal irritation, and in which elaborate chemical investigations have demonstrated the absence of metallic poisons. It was not, however, until 1885 that Dr. Vaughan found in cheese a poisonous ptomaine, tyrotoxin, and subsequently he isolated the same substance from milk and from ice-cream which had produced poisoning in eighteen persons. Only within the past few years have compounds known as ptomaines been investigated by Bence Jones, Dupré, Marquardt, Schmé, and Briger. They are alkaloid-like bases obtained from animal matter after decomposition. They are found during the earlier stages of decay, but, as putrefaction continues, rapidly disappear. The ptomaines are powerful poisons. The

poisonous effects sometimes produced by lobsters and other feeders on carrion are probably due to them.

The action of tyrotoxin on the lower animals has been studied by Vaughan,* and been found to produce symptoms closely resembling those of cholera infantum; indeed, he believes it to be often the cause of this disease. Ten to twenty-five milligrammes given to a cat produce in a few minutes nausea, retching, vomiting and purging, an irritable stomach, and a rapid, feeble pulse. With larger doses the severity of the symptoms is increased, and the breathing becomes shallow and labored. With doses of from seventy-five to one hundred milligrammes violent retching occurred, with a rapid and feeble pulse, but neither vomiting nor purging, and death took place within a half to three hours. The post-mortem appearances corresponded exactly with those of children after death from cholera infantum.

Carefully recorded cases of poisoning in man are lacking. It is probable that, with a fuller knowledge, we shall be able to distinguish between poisoning by ptomaines and other substances, as well as between the ptomaines themselves. In the majority of cases the usual symptoms are violent gastro-intestinal irritation, retching, vomiting, purging, rapid and feeble pulse, redness of the throat, and elevation of temperature. In fatal cases the temperature is commonly below normal. Besides these more common symptoms, in some cases have been reported dizziness, momentary loss of consciousness, constriction of the throat, a rash resembling that of scarlatina, convulsive movements of the limbs, dilatation of the pupils, and constipation. Death seems to result from heart failure.

None of my cases were severe. Evidently only a small quantity of the poison had been taken by each person. The attacks came on quite suddenly, and sometimes apparently several hours after any milk had been taken. The temperature seemed to have the highest range in those who had the least vomiting and purging. In the majority of cases prostration was not marked; the pulse was increased in frequency, small, and compressible; the skin felt as usual, or warmer; the tongue was slightly coated and in some cases red at the tip and sides; there were headache, nausea, vomiting, and purging. Some had redness of the throat. A few had a rash resembling that of scarlatina. Two had pain in the stomach, but it was not increased by pressure, and soon passed away. One was attacked with double pleuro-pneumonia, from which he recovered.

A CASE OF
RECURRENT FIBRO-SARCOMA OF THE THIGH.
AMPUTATION AT THE HIP JOINT. RECOVERY.

BY JOHN A. WELLS, M. D.,
ENGLEWOOD, N. J.

THE history of this case is submitted both as a contribution to the literature of amputation at the hip joint and as illustrating the possibility of obtaining entire asepsis under the most unfavorable surroundings.

* "Transactions of the Ninth International Medical Congress," p. 485.

J. F., colored, aged thirty-two, single, denied syphilis and injury. He had been most intemperate in the use of alcohol, but entirely free from sickness of any kind until January, 1887, when he noticed for the first time the presence of a painless new growth on the dorsum of the right foot. This growth within four months had increased to the size of an orange. It was removed at that time by dissection and found to be non-adherent to the bony structures. A microscopical examination of the tumor confirmed the impression that the growth was a simple fibroma. Contrary to expectation, however, the tumor reappeared within a few weeks in the unhealed wound, and rapidly increased to double or triple its original size, with the ultimate supervention of gangrene and septic symptoms. Amputation at the middle third of the leg was performed two months after the primary operation, and by strict antiseptic precautions the wound healed throughout the greater portion of its extent by primary union. The recurred growth was then found to be adherent to the metatarsal bones. The patient's temperature fell on the following day from 103.5° to 100° F., and rapidly sank to normal. After an interval of two years, during which he enjoyed excellent health, in spite of his intemperance, he sought my advice, and I found a dense fibrous-feeling mass measuring 16 ctm. in circumference at the junction of the middle with the upper third of the right thigh on the internal aspect. He had first noticed the mass three months before. During the two weeks following his visit to me it had increased nearly one third in size. Ablation of the entire extremity was advised on account of the previous unsatisfactory attempts at excision, and was performed by the writer, with the kind assistance of Dr. Clarke, Dr. Banks, and Dr. Haring, on the 21st of August, 1889. The surroundings were so extremely unfavorable for operating that the writer may be pardoned for mentioning briefly the well-known measures for securing asepsis which were employed. All unnecessary furniture was removed and the necessary articles were covered with clean sheets. The walls and the floors were well scrubbed with soap and water, and on the morning of the operation the patient was given a warm bath and dressed in clean under-clothes. All the water used in the operation, necessarily taken from a notably contaminated well, was boiled for one hour before using. One sixth of a grain of morphine with one ninety-sixth of a grain of atropine was administered hypodermically a few minutes before commencing the ether. The latter was administered with an Allis inhaler, with little difficulty in obtaining and continuing its effects, after some preliminary excitement. This fact is only mentioned because in the previous amputation, where no morphine or atropine had been given prior to the ether, it had been found impossible to bring the patient under the influence of the anæsthetic, and it was finally necessary to substitute chloroform. During the latter half of the present operation, on the contrary, no ether whatever was necessary. The integument involved in the incisions and the adjoining portions were shaved, scrubbed with green soap, and irrigated with a solution of bichloride of mercury, 1 to 1,000. Towels soaked in a solution of the same strength covered the exposed integument contiguous to the field of operation. The instruments employed had been previously boiled and placed in a solution of carbolic acid, 1 to 30. After thorough cleansing and disinfection of the surgeon's hands, the joint was exposed by the usual incision on the outer aspect of the femur, disarticulation was effected, and the femur was stripped of its muscular attachments for about six inches down the shaft. The method of Marshall Jordan for preventing hæmorrhage was found entirely effectual. A disinfected Martin's elastic bandage was doubled twice and passed around the groin above the tuber ischii posteriorly, thereby preventing downward slipping in that direction. A roller bandage

was placed over the superficial femoral as a compress, and the crossed ends of the Martin bandage were tightened over it by forcible traction on them by the hands of an assistant pulling in the direction to obtain the greatest pressure on the compress. The skin and fasciæ were divided circularly, opposite the point to which the femur had been stripped, and allowed to retract. Instead of dividing the muscles at this point, as recommended by some authorities—as it was believed that the flaps so formed would be insufficient to cover the large amount of muscular tissue—the cuff was dissected upward for three inches or more, and the muscles were divided at that point circularly with a catlin. The wisdom of this procedure was demonstrated, as, on bringing the flaps together, there was no tissue to spare. There was no hæmorrhage whatever on completing the section. The vessels were ligated with asepticized catgut, a drainage-tube was inserted into each of the three angles, and the wound was irrigated with bichloride of mercury, 1 to 5,000. The flaps were sutured by alternate catgut and aseptically-prepared silk sutures, the lines of incision were dusted with iodoform, and a generous dressing of creolin gauze and borated cotton was applied. At the completion of the operation there was little if any evidence of shock, the pulse being 100 and the extremities warm. On the following morning the pulse was still 100 and the temperature 99° F. The patient reported several hours of sleep, and desired permission to smoke his pipe. Whisky, in half-ounce doses, was given several times daily; the bowels were kept constipated for five days for fear of disturbing the dressings, in view of the unskilled nursing at his command, and were then moved by a laxative. On the fifth day the temperature rose to 99.4° F., falling to normal after the evacuation of the bowels. This was the highest point reached at any time, and at no other time after the first twenty-four hours did it exceed the normal. On the seventh day it was thought best to remove the drainage-tubes, one of which, that to the acetabulum, was necessarily a long one. The drainage-tubes were accordingly removed and shortened two thirds. The dressings were entirely free from pus, and there was apparent primary union throughout. Three days later the tubes were removed entirely. On the sixteenth day, at the next dressing, the silk sutures were removed, being perfectly dry. There was complete primary union throughout the long incisions. The patient was up on the twenty-first day, and out on the twenty-eighth.

It has seemed to the writer that perhaps this case deserved reporting with some detail for several reasons: For the apparent effect of the atropine in preventing the shock naturally incident to so extensive a wound, and for the assistance rendered by the morphine to the anæsthetic, as demonstrated by the previous difficulty of securing anæsthesia in the same case; for the efficiency of the Marshall Jordan method in preventing hæmorrhage; for the necessity of an upward dissection of the cuff to obtain sufficient flaps; and, more important than anything else, as illustrating the fact that the surroundings of a filthy negro shanty are not insuperable obstacles to the attainment of complete asepsis.

Sense of Taste in Criminals.—“Dr. S. Ottolenghi, a pupil of Professor Lombroso, has studied the sense of taste in criminals compared with that of other individuals. He says that in criminals the sense of taste is manifestly weak relatively to that of ordinary individuals; there is, again, a difference less marked between occasional delinquents and those who are habitual or born delinquents. Female criminals have the sense of taste still more obtuse than men of the same category. The author concludes from these remarks that this diminution in the sense of taste in criminals depends on a defect in the cerebral cortex.”—*Medical and Surgical Reporter*.

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MEDICAL STUDENTS AND MEDICAL MINDS.

AN address to medical students, recently published in the "Lancet," speaks of certain personal qualifications essential to success in the practice of medicine. The successful practitioner must have the sympathetic temperament, tact, common sense, and the tenacity and diligence necessary to develop and improve these qualities by the discipline of constant and progressive study. The proper habit of thought is the first thing for the student to cultivate. Thinking out problems and discovering a reason for everything are the true basis of rational knowledge, and constitute the difference between the real student and the mere laborious, painstaking reader of books. Scientific discourses are valuable aids to the learner at every stage of his career. A good lecturer impresses upon the mind facts of importance that the casual student, however earnest, might easily overlook. The experience of others working along specified definite lines, yet much in advance, is of incalculable benefit to him who runs and reads. To be one of an army marching toward truth in any given direction is both a moral and an intellectual stimulus. A well-made abstract of the good things that fall from the master's table is invaluable as an exercise for the mind. Notes concerning main facts, the headings recorded in brief, and the conclusions leading up to them more fully written out, form an admirable nucleus for a medical library and an excellent guide for original investigation. Methods of study, companionship, and the choice of books have a powerful influence on any career, that of medicine not excepted. They are largely a matter of temperament, sometimes acting as cause, sometimes as effect. Good methods, good companions, and good books will discipline even a crude mind. On the other hand, a bright student secures them as a matter of course. There are books and books. It goes without saying that, if professors write books, students should have sufficient *esprit de corps* to possess them. At the same time, the real value of a book consists in its power to help and inspire the reader, to put him in a working mood. A very little book often does great things, and sometimes an old work will throw a very window of light upon a perfectly new subject. This is an affair of individuality, of temperament, of mental make-up.

While there are many things that must be dug out alone in medicine, because the mental bread of each must be eaten with his own tears, yet there are but few occasions where two heads are not better than one. Much in the way of investigation and the acquisition of knowledge is best when shared. Together, each studies for the good of all, and, because one is indispensable to the other or others, perfect individual equilibrium and independence are secured. Companions teach as

well as schools. The quizzes of Brown, Jones, and Robinson may leave an impression when that of the pure unadulterated excellence of authorities has quite faded out. Learning how to ask questions of patients as well as of medical men, and how to answer them, is an important means of getting into an exact and direct mental attitude. The best talker—*i. e.*, the one who makes the plainest and most direct statement in the fewest words—is considered the best officer, other things being equal, in large business corporations. This, in a general way, applies equally well to physicians and the practice of medicine. Exact expression—verbal, literary, graphic, or of bodily action—is an unmistakable evidence of exact thought. Still, when all preaching is done and everlasting truth has been reiterated for the hundredth time, the simple fact remains that, if the medical man has not the quality of success, he does not succeed. Men of science are born, then trained. They are not made. Methods, companionship, books, training, and all the rest, are of no avail without this subtle something that makes for success and is inherent in the individual. It is possible to be honest, industrious, faithful, and conscientious, and still miss many of the prizes of life. Industry, personal magnetism, exactness, elasticity, a good manner, and grit are the chief factors in that abstruse process known as getting on in the world of medicine. In broader terms, industry, tenacity, and imagination are the natural and chief mental endowments needed. Without these characteristics there is no such thing possible as the scientific mind.

THE TREATMENT OF PNEUMONIA.

WALTER HAYLE WALSH, in the first edition of his "Practical Treatise of the Diseases of the Lungs and Heart," published some forty years ago, speaks of pneumonia as standing high among those diseases of which "the fitting treatment has been established by scientific experience," and then he goes on to say that that treatment consists of bloodletting and the administration of tartarized antimony, and the latter he thinks the more efficacious agent. Yet how few of those who read this page have ever seen a patient bled or antimony prescribed! The mean amount of blood M. Bouilland took from his patients was four pounds five ounces, and antimony was recommended by Walshe in doses of half a grain every hour for the first three or four hours, increasing to two grains every two hours. Since those days many fashions have come and gone, and who can say that the fitting treatment of pneumonia has been established? The administration of stimulants in large doses recommended by Todd, the nihilism of Bennett, and the antipyretic and antiseptic plans, all have had their innings, and a recent battle of statistics has shown that the mortality has at all events not undergone any appreciable reduction during the last half century.

The treatment of pneumonia by the application of the ice-bag has recently been under discussion at the Harveian Society in London. Dr. Lees, of St. Mary's Hospital, brought forward the record of eighteen cases of pneumonia in which a satisfactory result had followed this treatment in all but two. We

have looked into these histories, and there is no doubt that the results are very good, but we must bear in mind in pneumonia that there are cases and cases—that some cases will end in recovery in spite of any treatment, while there are others in which no treatment will save the patient. To the former class belong the large majority of the cases brought forward by Dr. Lees, if not all of them. Age and an alcoholic history are the most important factors in the prognosis of pneumonia, and it is very remarkable in connection with these cases that, of the whole number, none of the patients were older than forty. Can the cases have been taken haphazard from the last that fell to the lot of Dr. Lees as a physician to a hospital, or were they picked out from a number presenting themselves for treatment as being the most suitable for bringing out the superior advantages of a newly advocated remedy? There were no alcoholics among Dr. Lees's patients, nor were there more than three cases in which really grave symptoms were present. In two of the cases the writer acknowledges that no benefit was evident, and in two others the diagnosis of pneumonia was very doubtful.

The suggestion of a new treatment for any disease should always be favorably received and attempts made to give it a fair trial. In the case of the ice-bag treatment of pneumonia this will be done, but we venture to assert that, if any hospital physician were allowed to pick out of his case-book eighteen cases of pneumonia treated by ordinary methods, he would be able to put together quite as good a record as that published in the "Lancet" and discussed at the Harveian Society.

MINOR PARAGRAPHS.

THE PHONOGRAPH AS A UNIVERSAL ACOUMETER.

ACCORDING to the "Deutsche Medizinal-Zeitung," Lichtwitz maintains that Edison's phonograph fills the requirements for an acoumeter. It is possible, he asserts, to arrange phonogrammes by means of which the hearing can be accurately measured. The phonograph can reproduce every sound and tone perceptible to the normal ear, including the inflexions of the voice; it repeats the sound without noticeable change, so that the acuteness of the hearing of different patients, and of the same patient at different times, can be accurately compared; it will reproduce with the same intensity and quality of sound the uniform phonogramme, so that aural surgeons of all lands can compare their observations.

The operation of the apparatus is simple. The ear-piece is applied to the ear which is to be tested, and a phonogramme which is audible to the patient is sounded. The acoumetric scale is then descended until a phonogramme is reached which can not be heard. This marks the limit of hearing for that ear. In this manner the source of sound remains always at the same distance from the ear, and only the intensity of the tone differs. If the phonograph will do all that Lichtwitz alleges, and if it is practicable to create such a graduated series of fixed phonogrammes as he suggests—and we do not now see why such a plan may not be feasible—we may look forward to a great improvement on the present rather crude means of testing the hearing. All of the methods at present employed for this purpose are objectionable in that they do not furnish a fixed volume of sound in every case. The tone and intensity of the

"tick" of various watches differ, and sometimes they vary even in the same watch. Still more unreliable for purposes of comparison is the use of the human voice, but the plan suggested is intended to furnish the same tone and intensity of sound in each case, and so to render observations more exact and permit of comparisons of observations in a manner not at present possible.

ANÆMIA CURED BY HYDROTHERAPY.

"La Médecine contemporaine" records the following case of Dr. Good's: The patient, a girl of twenty, was affected with pallor, with a coppery hue, heaviness in the head, troubled sleep, bad dreams, poor appetite, painful digestion, constipation, cardiac and carotid murmurs, constant weariness, disinclination to walk, and painful menstruation, the menses being scanty and too light in color. There were also great depression of spirits, pronounced ennui, and an absence of interest in life. The treatment consisted in applying the cold douche to all parts of the body in turn, beginning and ending with the feet, and for a few seconds only, the temperature of the water being at 54° F. After the first day the douching was administered morning and evening for thirty seconds, the water being at 50° F., a shower-bath preceding the douche. Cold food and cold water as a drink constituted the diet prescribed. In three weeks the complexion had improved, digestion was less difficult, but walking was still an effort. Two weeks later the patient's condition was much improved in every way. Menstruation was absolutely painless, she had good sleep, there was less repugnance to walking, she was in better spirits, and the circulatory bruits were less pronounced. In a little over two months from the beginning of the treatment the patient began to grow stout and to walk, eat, and sleep well. The circulatory bruits were then almost imperceptible, the mental depression had disappeared, and the character of the menses was normal. After three months' treatment with the douche twice daily, from twenty to forty seconds, the patient left in perfect health. During that time there was no change in the diet, which proves that water as a drink does not retard recovery, as Fleury has affirmed. On the contrary, wine is said to impair the good effects of hydrotherapy.

MANIA FOLLOWING AN OPERATION FOR ENTROPION.

A CASE of this kind is mentioned in the "China Medical Missionary Journal." The patient was a woman, about thirty years of age, who had suffered from an attack of insanity eight years before. No anæsthetic, general or local, was given. The day after the operation she became restless, refused food, and was irritable on being spoken to. In a few days she had gradually become wildly maniacal and violent. A month later her mental condition, though better, was still far from satisfactory. It is going too far to say that this attack of mania was due to the operation, as it might have appeared even if nothing had been done, but it is very suggestive that the operation, through the nervous strain on the part of the patient, was the exciting cause. Frequently the occurrence of insanity after operations has been accredited to the effects of the anæsthetics employed. But in a case where there is a predisposing tendency to insanity it may be gravely considered whether the nervous expectation and excitement attendant upon an operation may not serve as an exciting cause.

FATAL POISONING WITH CALOMEL.

THE "Deutsche Medizinal Zeitung" quotes from a Finnish journal an account, by Dr. Runeberg, of a most interesting case of the fatal termination of subcutaneous calomel injections in

a syphilitic and anæmic woman. The injections were three in number, and their administration extended over a month. Three weeks after the last injection the woman died. At the post-mortem examination an incision of the buttocks exposed two morbid foci: a smaller one, consisting of fibrous tissue, inclosing a solid, yellow, caseous mass; a larger one, containing about two tablespoonfuls of a grayish-white, thick liquid resembling pus. A comparatively large quantity of mercury was found by chemical analysis in the liquid of the second collection, while not a trace of it was to be found in the first. The poisoning was, of course, complicated by the anæmia, but was continued by the constant absorption of the injected calomel. This difficulty could only have been met by excision of the morbid mass, but an operation was contra-indicated by the patient's enfeebled condition. It seems, therefore, that, in so far as a patient's tolerance of mercury is unknown, it would be advisable to administer it either by the stomach or, if subcutaneously, in smaller doses more frequently repeated and more readily controlled.

PROTECTIVE INOCULATION WITH AN ANTHRAX ALBUMOSE.

ACCORDING to the "British Medical Journal," Mr. E. H. Hanlin has experimented on over a hundred mice and about fifty rabbits with an albumose that he has isolated from ordinary cultivations of anthrax. The albumose is precipitated from the cultivation liquid by the addition of a large quantity of absolute alcohol, and the washing in this liquid frees it from the soluble ptomaines; it is filtered, dried, redissolved, and filtered through a Chamberlain's filter. From one five millionth to one ten millionth of the weight of the animal was injected. If an animal was inoculated with anthrax after a large dose of the albumose, there was apparently a hastening of the fatal termination; but after inoculating a small dose of albumose, immunity seemed to be conferred; with a medium inoculation, the anthrax bacilli were able to live and produce more albumose, at length overcoming the resisting powers of the animal. The albumose seemed to be slowly excreted, and to be capable of suppressing the germicidal power of the animal. The experiments were made in Koch's laboratory, and he personally inoculated with anthrax some animals protected by the albumose, and the animals lived.

THE PARASITES OF THE HEALTHY SKIN.

ACCORDING to the "Journal d'hygiène," Dr. Arnaldo Maggiora has come to the following conclusions as the result of numerous experiments: Micro-organisms that may also be isolated in the ground or atmospheric air live constantly on the normal human skin. In the various parts of the body the same forms of micro-organisms are almost always found. The fetid perspiration of the feet is not due to the presence of a special form of micro-organism, but to the fact that the micro-organisms develop under special conditions of temperature and humidity presented by the feet when covered with boots. The complications of an infectious character that may present themselves in wounds of the feet probably depend on the greater or lesser facility with which such wounds may be infected by pathological organisms that are present in the soil or in the atmospheric dust deposited on the pavement.

TOTAL BLINDNESS AFTER EATING MUSHROOMS.

IN a recent number of the "Gazette des hôpitaux," M. Fougerey and M. Fouclard report a case of total blindness in a primipara, aged thirty-one years, who had gastro-intestinal trouble, uncontrollable vomiting, and migraine, after eating

mushrooms. For thirty-six hours she was absolutely blind, and homonymous hemiopia followed. Ophthalmoscopic examination showed slight contraction of the field of vision, but no scotoma. A painful perception of blue persisted for five or six days. Twelve days after the attack the patient aborted, the fœtus of seven months, being well formed. Complete recovery followed. The authors believe the amaurosis to be hysterical, and they say that, while cases of hysterical amblyopia are not rare, only one other case of hysterical total amaurosis without ocular lesion has been reported.

STEAMSHIP SANITATION.

THE "British Medical Journal" makes a very pungent criticism of the ordinary methods of examining emigrants at British ports. The writer applies the word "farceful" to the work, drawing a picture of the huddling crowd, encumbered with their baggage, as they pass over the gang-plank. Suspicious cases can not be isolated or put under observation. On board the steamer there are, on crowded passages, no hospital accommodations just at the time when they are apt to be the most needed, the space belonging to the sick being absorbed by the agents for bunk-room. If the ship's surgeon makes any complaint in regard to these matters, he may expect to be snubbed or repulsed in some unpleasant way.

MEDICAL MATTERS IN PRINCE EDWARD ISLAND.

FROM the "Maritime Medical News" we learn that an association was organized, on October 2d, among the medical men on Prince Edward Island. There were present twenty-five registered physicians at this initial meeting. Officers were elected, Dr. R. Johnson being chosen president and Dr. S. R. Jenkins secretary, both of Charlottetown. Resolutions were adopted empowering a committee to endeavor to procure the passage of a medical act for the province, in order to "insure a high standard of professional education and of social dignity and estimation."

URBAN CLEANLINESS.

COMMISSIONER J. S. COLEMAN, of the New York Street-cleaning Department, will lecture, under the auspices of the American Public Health Exhibition, on the 29th inst., at the Brooklyn Institute, at eight o'clock in the evening. His subject will be "Civic Cleanliness," and he is fitted to treat clearly concerning the gradual building up of the largest plant, on this side of the Atlantic, for the collection and disposal of civic refuse.

THE NEW YORK ORTHOPÆDIC DISPENSARY AND HOSPITAL.

AT a recent meeting of the board of trustees it was resolved either to enlarge the present building on Fifty-ninth Street or erect a new one elsewhere. The institution, as we have before stated, has long felt the need of more extensive accommodations, and it is to be hoped that the sum now required, \$100,000, will be subscribed before the winter is over. Several large subscriptions have already been made.

ITEMS, ETC.

The Red Cross at Johnstown.—Miss Clara Barton left the field in the Conemaugh Valley on October 25th, on the termination of the greatest campaign that the Red Cross Society has hitherto enlisted in. A public reception was given Miss Barton on the evening before she left, which was attended by people of

every class, out of respect to the noble lady who had befriended them in their great calamity.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending November 19, 1889 :

DISEASES.	Week ending Nov. 12.		Week ending Nov. 19.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.	40	6	31	11
Scarlet fever.	60	2	27	4
Cerebro-spinal meningitis . . .	3	3	2	2
Measles.	46	6	40	3
Diphtheria.	89	26	84	18

The New York Post-graduate Medical School and Hospital.—A clinic for diseases of the rectum has been established, to be under the care of Dr. Charles B. Kelsey, who will also give clinical instruction in the school. Dr. Kelsey will be assisted by Dr. J. Blair Gibbs.

Medical Registration in North Carolina.—The October issue of the "Bulletin" of the State Board of Health of North Carolina contains the following semi-official announcement: "All physicians in this State must register with the Clerk of the Superior Court of their county before January 1, 1890, if they intend to practice thereafter and collect their fees for services rendered. There will be no subterfuge allowed. The law must be enforced."

The Woman's Hospital.—Dr. Bache McE. Emmet and Dr. Horace T. Hanks have been appointed surgeons to the hospital, to succeed Dr. James B. Hunter, deceased, and Dr. C. C. Lee, resigned.

Trained Nurses at Bethlehem.—The graduation of a class of four trained nurses was the occasion of a special celebration at St. Luke's Hospital, Bethlehem, Pa., on October 18th. Dr. Arpad G. Gerster, of New York, was present and delivered the address to the class.

The Kings County Medical Association met on November 8th, at the new rooms over the Brooklyn Post-Office. The subject before the meeting was the "Ocular Symptoms referable to Renal Disease," introduced by a paper by Dr. L. A. W. Alleman, with a discussion by Dr. Kushmore, Dr. H. R. Price, and Dr. Waterworth. The annual committee on nominations was appointed.

The Guild of St. Luke.—An association in London, composed entirely of medical men, whose banding together has for its object their mutual support in looking after the religious welfare of their patients, is known by the name of the Guild of Saint Luke. At a recent public meeting, held at St. Paul's Cathedral, there were present, according to the "British Medical Journal," two to three thousand persons interested in the work of the guild.

The Middleton Goldsmith Lecture.—Professor William Pepper, provost of the University of Pennsylvania, will deliver the Middleton Goldsmith Lecture before the New York Pathological Society in the hall of the New York Academy of Medicine on Wednesday evening, January 15, 1890. The subject of the lecture will be "Hepatic Fever."

The New York Polyclinic.—Dr. Francis J. Quinlan has been appointed lecturer on diseases of the throat and nose.

Bromidia.—Seven Kansas City druggists were lately fined \$500 each, with costs, for counterfeiting this preparation.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 10 to November 16, 1889 :*

MACAULAY, C. N. B., Captain and Assistant Surgeon, is granted leave of absence for one month, to take effect about the 29th instant. Par. 2, S. O. 166, Department of the Missouri, Fort Leavenworth, Kansas, November 8, 1889.

MAUS, LOUIS M., Captain and Assistant Surgeon, having relinquished the leave of absence on surgeon's certificate of disability granted him in S. O. 249, October 25, 1889, from this office, will, by direction of the Secretary of War, upon being relieved from duty at Fort Porter, N. Y., as directed in S. O. 242, October 17, 1889, from this office, proceed without delay to Fort Stanton, N. M., and report in person to the commanding officer, Department of Arizona. Par. 8, S. O. 261, Headquarters of the Army, A. G. O., Washington, November 8, 1889.

The following changes in the stations of medical officers serving in this department are hereby made, viz.: CRAMPTON, L. W., Captain and Assistant Surgeon, from Fort Lyon, Col., to Fort Sheridan, Ill.; CORBUSIER, W. H., Captain and Assistant Surgeon, from Fort Hays, Kansas, to Fort Lewis, Col.; IVES, F. J., First Lieutenant and Assistant Surgeon, from Fort Lyon, Col., to Fort Sill, Indian Territory. Par. 3, S. O. 167, Headquarters Department of the Missouri, Fort Leavenworth, Kansas, November 9, 1889.

Society Meetings for the Coming Week :

MONDAY, *November 25th*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.

TUESDAY, *November 26th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society (private); Boston Society of Medical Sciences (private).

WEDNESDAY, *November 27th*: New York Surgical Society; New York Pathological Society; New York Academy of Medicine (Section in Obstetrics and Diseases of Women and Children); American Microscopical Society of the City of New York; Medical Society of the County of Albany; Auburn, N. Y., City Medical Association; Berkshire, Mass., District Medical Society (Pittsfield); Philadelphia County Medical Society.

THURSDAY, *November 28th*: New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).

Proceedings of Societies.

NEW YORK SURGICAL SOCIETY.

Meeting of October 23, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

Chopart's Amputation.—Dr. CHARLES McBERNEY showed a patient on whom he had performed Chopart's amputation, suturing the extensor tendons to the plantar flap and keeping the foot in a state of dorsal flexion during the after-treatment, with the idea of securing better power of flexion when the foot came to be used. The result had justified his expectation, and the movements of dorsal flexion were remarkably good.

Fracture of the Pelvis.—Dr. McBURNEY also showed a patient who had been brought to the hospital with this injury, together with extraperitoneal hæmorrhage filling the prevesical space and infiltration of urine in the same region. An incision was made exposing the prevesical space, and, as rupture of the bladder was strongly suspected, the peritoneal cavity was opened, but no intraperitoneal rupture was found. Additional drainage was provided for by way of the perinæum, and the patient had made a good recovery.

Dr. C. K. BRIDGON said, in reply to a question by Dr. McBurney, that he had reported several cases of rupture of the bladder; that about two years before he had read the histories of three cases, two of which were associated with bad fractures of the pelvis; that in both cases the fragments were so interlocked as to be immovable. One was treated by incision of the prevesical space and perineal section, but the injury was complicated by others of a severe character, and the man died. The other was treated by suprapubic section alone; the drainage was perfect, and the patient recovered. The third was an intraperitoneal rupture not associated with fracture; the operation of suturing the bladder was done late, and the patient died. When an extraperitoneal rupture had been made out by opening the prevesical space, even with the strictest antiseptic surroundings, he did not regard it as a trivial matter to open and explore the cavity of the peritonæum in search of other suspected injuries; he would not do so without what he might regard as very sufficient reasons. He thought that in operations for extravasation of urine due to rupture of the bladder perineal drainage should not be employed.

Dr. McBURNEY thought that in extravasation of urine perineal drainage at least should be used in all cases.

Dr. J. A. WYETH thought that the question could be settled only by considering the conditions present. Perineal drainage was useful in ruptures about the urethra and the neck of the bladder, and might safely be supplemented by suprapubic drainage. In all these accidents, where the symptoms suggested intraperitoneal rupture of the bladder, it was imperative to open the peritoneal cavity to ascertain the exact condition, and necessary to disinfect that cavity.

Wound of the Abdomen.—Dr. FRANK HARTLEY presented a case of lacerated wound of the abdomen with protrusion of intestine and symptoms of internal hæmorrhage. The patient was a boy who had fallen six feet, impaling himself on a picket of an iron fence. Laparotomy was performed, and the intestines were replaced. The peritoneal cavity was found to contain a large quantity of blood coming from a perforation of the deep epigastric artery at a point about an inch from the external iliac. The fascia had been torn from the iliac fossa except over the line of the external iliac artery. The artery having been tied, the contused intestine was placed in such a position that an artificial anus might form with safety if the intestine sloughed; the iliac fascia was sutured into position; and the lacerated portions of the muscles in the upper portion of the wound were excised and their ends brought into apposition, but in the lower half the laceration was so extensive as to render this impossible, and that part of the wound was packed with gauze. The patient had made a good recovery, and left the hospital in five weeks. At present there was no hernia, and there was no sign of weakness indicating a probability of its occurrence.

Habitual Dislocation of the Sternal End of the Clavicle.—The PRESIDENT presented a youth, nineteen years old, who a few months before had gradually been affected with such laxity of the ligaments of his left sterno-clavicular joint that the clavicle became dislocated forward whenever he raised his elbow above his shoulder, and returned to its place when

the arm was lowered. On the right side the bone moved forward in like manner, but not to the extent of dislocation. The condition was very annoying to the patient, and he applied for treatment in the early part of August. As retention by molded splints or bandages was usually not only ineffective but also very troublesome, the president had sought to produce by subcutaneous injections of alcohol such a thickening and condensation of the circumarticular tissues as would prevent recurrence of the dislocation. He had made four injections, at intervals of a week or two, and the patient had refrained from raising the elbow during the whole time, but had worn no apparatus. He could now raise his hand high above his head without causing the bone to slip forward. To the touch the surrounding tissues seemed denser and thicker. The parts had been quite tender for a day or two after each injection. In making the injections he had thrown the alcohol, not into the joint, but into the circumarticular tissues, pushing the point of the needle close to the bone.

Suprapubic Cystotomy.—Dr. WYETH presented several specimens of tumors and calculi from three cases in which he had recently operated. The first case was that of a man, forty-eight years old, who had had symptoms of cystitis, with impediment to the outflow of urine, for seven or eight years. These symptoms had gradually increased until the retention of urine had rendered the constant use of the catheter necessary. A diagnosis of obstruction within the bladder having been made, suprapubic cystotomy was performed in the usual way. The bladder contained a uric-acid calculus measuring an inch by an inch and a half. This was readily removed by the wound, giving the exploring finger complete command of the bladder. A tumor, projecting about three quarters of an inch, was found situated immediately behind the outlet into the urethra. This was twisted from its base with Spencer Wells's ovarian-sac forceps, and there was little or no hæmorrhage. Retractors were then introduced so as to protect the soft parts, and the surface from which the tumor had been removed was seared with the actual cautery. The ordinary Trendelenburg T-drainage-tube was introduced, iodoform gauze was packed around it, and the usual dressing was applied. The tube was removed on the fourth day, when the symptoms of obstruction and cystitis had entirely disappeared. The sinus closed in three weeks, and the patient was discharged cured, being able to pass his water without the catheter.

Another case was that of a man, forty-five years old, whose symptoms were analogous to those in the case just described. A similar operation was performed, and a tumor measuring half an inch antero-posteriorly and a quarter of an inch from side to side, with an elevation of about three quarters of an inch, was removed. The drainage-tube was taken out on the fifth day, and the sinus had closed by the end of the fourth week, a perfect cure resulting.

The third case was somewhat unusual, being one of acute cystitis and urethritis in a boy of four years, with paralysis of the bladder due to compression-myelitis. The inflammation had resulted from infection by the use of a catheter that had been employed on a patient suffering with non-specific urethritis. The boy's temperature rose as high as 103° F., and his suffering was intense. Suprapubic cystotomy was done in order to clear out the bladder and establish effectual drainage. Relief followed immediately, and now, three weeks after the operation, the tube had been removed and the sinus was closing.

Dr. McBURNEY remarked that the objection to suprapubic cystotomy was the persistent sinus in the track of the tube.

Dr. WYETH said that his experience had led him to believe that the sinuses could be healed readily. In many cases there

was no cystitis and drainage was not important. Then the wound in the bladder could be closed at once with catgut sutures, and a catheter introduced through the urethra for permanent drainage for five or six days. This allowed the bladder to be at rest and the wound in its walls to close. In other cases, where drainage was essential, the tube should be removed at the earliest possible moment, to prevent the tendency to the formation of a fistula.

Intestinal Anastomosis.—Dr. F. KAMMERER related the histories of two cases of gastro-enterostomy in which he had lately performed end-to-end anastomosis with catgut rings. The first was that of a woman, about sixty years old, with a tumor of the pylorus and dilatation of the stomach. After making the incision, from the ensiform cartilage to the umbilicus, the speaker divided both the upper part of the jejunum and the pyloric end of the stomach transversely to the course of the organ, and then applied Abbe's rings. The patient got along very well for the first two days, but then peritonitis developed, of which she died on the fourth day.

The second case was that of a man, twenty-nine years old, who had suffered for many years with pyloric obstruction, and came into the German Hospital in a very low condition. As a preliminary measure his stomach was washed out daily for two weeks, but even then the contents had not been entirely withdrawn, and he began to fail so rapidly that, if anything was to be done, it had to be done immediately. Gastro-enterostomy was performed. The speaker incised the viscera in the direction of their course and introduced catgut rings. In this, as well as in the first case, the Lembert suture was added as a precaution. The patient died on the second day, from shock. The speaker had not had the difficulty in finding the upper part of the jejunum that had been met with by some authors. Holding up the lower angle of the abdominal incision and drawing the gut through his fingers, he had easily recognized the duodenum by its attachment to the vertebral column. He had secured each ring with six sutures, two of which were passed laterally on both sides of the incision into the viscus. He thought it would be a good plan to pass the suture lying in the angle of the incision through the walls of the gut, for he had found a tendency of the gut to recede over the ring at that point. This had caused him a great deal of trouble. The specimen from the first case showed clearly the digestive power of the stomach, for the ring was entirely gone. In the second case, however, the ring was completely intact. This he attributed to the patient's low condition. The speaker had had no experience in the use of Senn's plates, but he thought he should use them in his next case, although he must admit that in his second case, in which water had been forced into the jejunum as a test, not a drop escaped at the line of sutures. The sutures were of silk.

Dr. B. F. CURTIS thought it was customary to use six threads with the catgut rings, and always to pass the end threads through the wall of the bowel, and not through the incision. Six Lembert sutures should be added for greater security.

The PRESIDENT said that the use of catgut rings in end-to-end union was not novel; French surgeons had so employed them for over three years.

Dr. MCBURNEY said he always passed the end suture through the wall of the bowel, about a quarter of an inch beyond the end of the incision. This he considered safer than to pass it through the angle of the incision itself. He thought there was not much danger of infection through the tissue of the wall of the gut, and silk had the advantage of not being liable to slip and was always soft, whereas catgut was taken out of a liquid that had of necessity rendered it hard and unyielding.

Dr. MCBURNEY thought there was very little likelihood of harm being done if the rings were well applied. Peritoneal

adhesion would take place and cover the sutures in. He would ask why Dr. Kammerer had concluded to use Senn's plates in any future case.

Dr. KAMMERER would do so in the hope of avoiding every chance of infection. When catgut rings were employed, many sutures were necessary—at least six or eight or more, for he believed that, when only four were used, there was no absolute guarantee that the parts of the rings between the sutures were in close approximation. Only very little fecal matter would have to find its way between the sutures to cause peritonitis. And any hard material would always make a better approximation of the two surfaces. In his second case the result had been good, however, so far as the anastomosis was concerned.

Dr. BRIDGON said that one of the gentlemen of the house staff of the Presbyterian Hospital, Dr. Shively, had been experimenting with chromicized gelatin as a substitute for the catgut rings. It could be molded into any shape, and could thus be placed in accurate position.

Dr. WYETH asked what the size of the aperture in Dr. Kammerer's specimen had been when it was fresh.

Dr. KAMMERER said that the openings had measured about an inch in length. As to its being the usual practice to pass the end sutures through the wall of the gut, he had not been able to gather from Dr. Abbe's address, in Philadelphia, that he invariably did so. It was known that, when Senn's plates were used, two sutures lay in the angles of the intestinal wound. When the gut was transfixed with sutures in the entire circumference of the catgut rings, the tension on the different parts of the gut lying between the individual sutures after they were tied was probably often unequal. On this account also he believed that the ideal ring was one of unyielding material and armed with few sutures.

Dr. CURTIS repeated that the suture at each end of the oval catgut ring should always be passed through the wall of the intestine in exactly the same manner as those at the side. Unless this was done there was nothing to hinder the intestinal wall at the end of the wound from slipping over the ring.

The PRESIDENT believed that a fatal issue in these cases was due to the escape of the contents of the bowel along the side of the silk ligatures. He thought there would be a manifest advantage in using catgut for sutures as well as rings.

Dr. WYETH thought the greatest danger lay in the possibility of failure to establish thorough communication. The openings always seemed smaller than they ought to be in order to avoid stenosis after the operation.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

Dr. CLARENCE C. RICE in the Chair.

Meeting of October 22, 1889.

A Year's Work in the Section.—The CHAIRMAN opened the meeting with an address to the Section giving a brief *résumé* of the work done since his election last February. It had seemed to him that the Laryngological Section would till a larger field of usefulness if the topics of the papers and the discussions treated of subjects which were of interest not alone to the rhinologist and laryngologist, but to those working in other special lines of medical study, and to the general practitioner also, for there were many medical subjects which were pertinent to this Section and at the same time perhaps of special interest to the neurologist or the dermatologist, to the general surgeon, and the family physician. It was therefore thought desirable to select such papers and arrange such discussions as would bring together these different classes of physicians, and

thus secure a respectable attendance at the meetings. No one cared to read a carefully prepared paper to empty seats, and the most enthusiastic rhinologist would fail to find any comfort in his latest ingenious instrument if it could be demonstrated only to the faithful few and the janitor. To the rhinologist, the consideration of medical subjects a little way removed from those directly relating to the nose and throat was of great value. In the daily routine office work it was almost impossible to get beyond the limitations of thought and experience which were closely identified with the class of patients they treated, and broadening medical influences were needed by no class of medical practitioners more than themselves. It was refreshing to hear the aetiology of a cold in the head described by the old-time practitioner. They liked to know how the general surgeon removed a growth or foreign body from the larynx. They were apt to get some new ideas when they closed their textbooks and listened to the neurologist's opinion of the pathology and aetiology of some of the neurotic disorders of the upper air-passages. The physician, too, who spent his time listening to the heart's action, percussing the chest, and making out the borders of the liver and spleen, could suggest causes of congestion and hypertrophy of nose, pharynx, and larynx which seemed indisputable. One other reason for avoiding the consideration of subjects of interest only to the exclusive specialist in laryngology was to be found in the fact that a number of New York's most prominent specialists had seldom favored the Section with their presence. The speaker said that if the members of the Section had lost much by their absence, they had missed hearing some very scientific and instructive papers and discussions. The "New York Medical Journal" and the "Medical Record" had both published the papers of the Section, and he believed would continue to do so. The speaker then briefly reviewed the work of the past season. He tendered his thanks to the gentlemen who had contributed so largely to the success of this Section by their active co-operation, and earnestly requested their continued assistance.

A Laryngeal Growth.—Dr. J. H. BILLINGS presented a male patient, about forty-five years of age, suffering from a laryngeal growth. This man, he said, had come to the hospital last spring, when the diagnosis of laryngeal growth had been arrived at, and an unsuccessful attempt had been made to remove it. Then the patient had disappeared and had not been seen again until very recently. The growth had increased in size until the stenosis was almost complete, the patient only having a space of the size of a crow's quill through which to breathe, and the condition had appeared such as to demand immediate attention. It was difficult to give any opinion as to the character of the growth. Some portions of it were as yet quite movable, but there was considerable œdema. The growth might be a papilloma.

Dr. G. B. HOPE said that the growth had hardly been under observation long enough to test the character of it. After an ineffectual effort had been made to remove a portion of the tumor it had been proposed to temporize with the case, or to obtain a small portion of the growth for microscopical examination. There had been some history of syphilis, but not a definite one. The patient had, however, been given iodide of potassium in fifteen-grain doses, and had already reported some mucous-membrane irritation. It was not desirable to interfere at the present juncture, unless the question of saving the man's life came up for immediate consideration. Opinions upon the nature of the case were divided, as to whether the tumor was of a gummatous form or something intrinsically more serious.

Dr. R. P. LINCOLN thought it better to wait and test the effect of the anti-syphilitic treatment before any radical operation was attempted. The general appearance of the parts, and

the absence of any involvement of the surrounding structures, suggested syphilitic rather than malignant trouble. The treatment which had been already instituted might demonstrate something as to the real nature of the case.

A Foreign Body in the Bronchus.—Dr. W. K. SIMPSON reported the history of a case of a tooth in a bronchus. This foreign body had remained in the tube more than six months and had then been expelled. The patient, after having fourteen upper teeth extracted at one sitting, under nitrous-oxide gas, had gone two days after this and had one more tooth extracted, again taking gas. On recovering this last time she had experienced a slight tickling in the throat, followed by cough. About a month after this, severe pain had been felt on the right side of the chest, in the axillary line. This pain had lasted a week and had been succeeded by a whistling sound on breathing. The cough had remained. When she was seen, on March 10, 1889, her tongue was excessively hyperæmic, the tissue was denuded, and the general appearance was that of follicular amygdalitis. The speaker had considered the cough due to the condition at the base of the tongue. The case had remained under his care until May 25th, with little change in the cough. Various forms of routine treatment, in the way of application and cauterization, had been adopted. On the above-given date pain in the right lung had been felt, and percussion had demonstrated a well-marked area of dullness. The patient was removed to a hospital, where she rapidly became worse, her temperature running as high as 105° F., and the pulse rising to 120. Light râles were detected over the area of dullness. The patient had become cyanotic, and her death was apparently imminent. She was much relieved by the inhalation of oxygen. Two days later, during a severe attack of coughing, she expectorated a thick mass of material tinged with blood, in which was imbedded the large root of a tooth. Her subsequent history had been one of rapid improvement. The hyperæmia at the base of the tongue still existed, and the question had suggested itself whether this was of itself sufficient to cause the paroxysmal cough.

Dr. R. C. MYLES, in reply to a question, said that he had always found the galvano-cautery efficient in treating such conditions at the base of the tongue. He had tried chromic acid, but it was far from satisfactory. Not infrequently it ran down upon the edges of the epiglottis and on to the hyoid bone.

The CHAIRMAN thought it most important to recognize this pathological condition, for it was one which, in addition to keeping up a distressing cough, might eventually produce catarrh of the larynx. In the majority of cases it would be necessary to use a mirror, and then the diagnosis was readily made. The enlarged papillæ were to be seen overlying the epiglottis, the latter being inflamed and congested.

A Tooth-plate in the Laryngo-pharynx (?) for Sixteen Days.—Dr. C. H. KNIGHT read a paper with this title. He said that the case was somewhat extraordinary in view of the shape and size of the foreign body and its prolonged retention.

Mary O'C., aged twenty-six, married, was confined with twins on July 19, 1889. After delivery she had a convulsion. Several more occurred on succeeding days. On the sixth day she had become sufficiently conscious to be aware of having considerable difficulty and pain in swallowing. The voice had gone and there was some dyspnoea. The cause seemed not to have been suspected. Matters went on in this way for some time with no attempt to take solid food, until the sixteenth day, when a violent attack of coughing and vomiting occurred. The patient had been conscious of a mass of some kind which had come partially into her mouth and dropped back again. Her dyspnoea and other symptoms had become much intensified. Her physician, who had been summoned, had failed to remove

the foreign body with instruments, but finally had succeeded in withdrawing it by means of his finger. The speaker had first seen the patient at the Vanderbilt Clinic on August 26, 1889—more than a month after the accident. She had then complained of pain on the right side of the larynx radiating upward and backward toward the ear, and aggravated by swallowing. A dysphagia had at times been so marked that she had refrained from trying to eat solid food, and in consequence her general condition was bad. The voice had been completely lost, and attempts at phonation were fatiguing and painful. Breathing was stridulous, and under exercise or excitement quite labored. There was an almost constant hacking cough, with profuse expectoration of frothy, muco-purulent sputa. Dr. James examined the lungs and found no pulmonary disease. Laryngoscopic examination showed the larynx to be very hyperæmic and distorted. The image was obscured by the abundant secretion which was present. The left side of the larynx was chiefly affected and was immovable. The epiglottis was of nearly twice the normal thickness; the left aryteno-epiglottic fold was enormously swollen and œdematous. The left ventricular band was

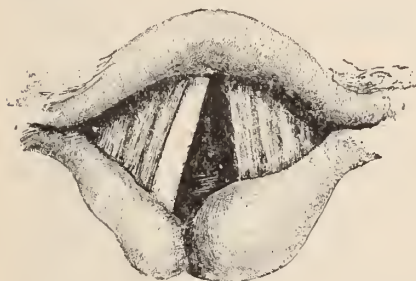


FIG. 1.

swollen nearly to the median line and entirely concealed the left vocal cord. The middle third of the right vocal cord was visible and intensely congested. The swelling of the tissues was less on the right side. At no point could any indication of ulceration or laceration be seen. Narrowing of the chink of the glottis was so extreme as to suggest the necessity of intubation or tracheotomy. The appearance of the parts indicated serious damage to the laryngeal cartilages. The speaker was quite prepared for necrosis with its unhappy consequences.

To his surprise, however, improvement began and steadily progressed. The left vocal cord became exposed as the swelling subsided. The left side gradually resumed its share in the respiratory and phonatory functions of the larynx. Still the voice had not been restored and the reason had become evident as the parts had approached their normal proportions.

The posterior third of either vocal cord was missing; it looked as though it had been cut out with a sharp curette. Such a lesion would, of course, be permanent. In contraction of the laryngeal adductors the anterior portions approximated, leaving a wide gap at the posterior commissure. The ventricular bands appeared to assist the true cords in their attempts at phonation, but without succeeding in raising the voice above a whisper. The foreign body which had caused this condition was a hard rubber plate with the fragment of its single tooth still attached. This plate measured three inches in length and three eighths of an inch in width, its greatest thickness being less than a third of an inch. The distance between its two extremities was a little more than an inch. On one side it was smooth, on the other was the roughness for adaptation to



FIG. 2.

the alvcolar processes. Projecting from its anterior margin were seven or eight sharp points, which fitted in between the teeth. The character of the lesion as it appeared suggested the position possibly assumed by the foreign body. Although any theory on that point would have to be purely speculative, it had seemed to the speaker that one arm of the plate had rested in the laryngo-pharynx, while the other had occupied the posterior commissure of the larynx, impinging upon and finally eroding the vocal bands. Had it been swallowed reversed, with the

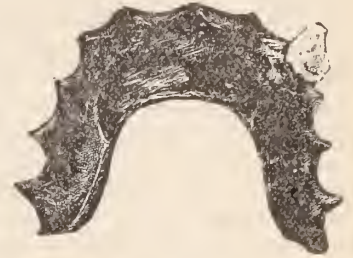


FIG. 3.

ends of the plate looking upward, it would probably have been carried farther down, and its spontaneous expulsion have been hardly possible. Having been wedged in the position surmised, it had been firmly held by muscular spasm, and swelling and œdema had quickly supervened. Finally it had been loosened by an ulcerative process and dislodged by a violent expulsive effort. The remarkable tolerance of the parts might be explained by the fact that the patient lay in a semi-conscious state for six days after the accident. The present condition of the patient showed much general improvement. She still complained of pain on swallowing and constant soreness, also of deep-seated pain in the right ear, for which the aurists could find no local cause. The larynx had nearly recovered its normal condition with the exception of each vocal cord. The parts still continued red, with more or less thin purulent secretion, which seemed to ooze from the posterior wall of the larynx. The latter fact, together with the offensive breath and persistent pain on deglutition, the speaker thought pointed to the existence of necrosis. The chronicity of these cases was well known, and it might be many months before positive proof of the suspicion appeared. The treatment in this case had consisted of the use of general tonics and local sedative applications, steam inhalations, and, externally, water fomentations. The question of treatment in such cases was always one of importance. In the event of urgent dyspnoea the foreign body must be removed or a new air-passage provided by opening the trachea. The speaker thought that his case was a most eloquent argument in favor of conservatism. In conclusion he offered the following query: In a case of firmly impacted foreign body of large size and irregular shape, would it not be wiser to defer forcible attempts at removal until it had become in a measure loosened by natural processes, provided there seemed to be danger of causing extensive laceration in the act of dragging it from its bed, and provided no urgent symptoms were present?

Dr. MAVERT said that the patient whose case had been reported by Dr. Knight had been delivered of twins in his service at the hospital. He had, however, seen her some time before this, and she was at that time somewhat œdematous in the lower extremities; her urine was albuminous and of high specific gravity, but contained no casts. She had given birth to a child three years before without any complications. He had restricted her to appropriate diet, under which the condition of the urine had improved. When she next reported at the hospital she was in labor and was delivered of twins. No chloroform was administered. During the afternoon, a few hours after delivery, a violent headache set in, for which she was given morphine, potassium bromide, and chloral. Soon after this he was told that she had had a convulsion. When he arrived at the patient's bedside she was in the stage of stupor, but soon after went into a well-marked eclamptic condition, during which she

bit her tongue, and the speaker observed that she had no artificial teeth. She had at intervals several more seizures, which eventually yielded to treatment. During the first twenty-four hours after delivery the patient had first complained of soreness in the throat, and considerable mucus seemed to be accumulating, with some slight cough attending. He made an ordinary examination with a tongue depressor, but, knowing nothing of the existence of any foreign body in the mouth, suspected no complication of that kind. She was treated on general principles as having uræmia and acute Bright's disease, being given nothing but liquid diet, which she was able to swallow readily. About a day or so after her delivery he was told that the patient had missed her artificial dental plate, the size of which she had described. Then her throat was examined, but without using a mirror, and nothing was seen. Four days later she sent for him to say that the plate was in her throat. Then the laryngoscope was used, the partially broken tooth and dental plate were seen, and an attempt was made to remove them with a light dressing forceps. These did not answer, and he introduced his finger, and, after several trials, removed the plate.

Dr. S. D. POWELL said that he had not had very extensive experience with foreign bodies in the air-passages. The first case had been that of a colored man, who, while laughing with his mouth full at dinner, had got a piece of meat with bone attached into his windpipe. The meat had entered between the vocal cords, the bone remaining free. The speaker was sent for, and succeeded with his fingers in pulling away the bone only, breaking it away from the meat, which was firmly fixed between the vocal cords. He then at once did laryngotomy, and with a probe pushed the meat out of the larynx, whence it was removed with a forceps. Another instance had been that of a child, five years of age, who was brought to his office on account of painful deglutition and loss of voice. Examination revealed a foreign body lodged below the vocal cords, which were very oedematous, the body having been in the trachea several days. He attempted to get hold of it with forceps, but failed, and performed thyrotomy and succeeded in removing a small shell of about half an inch in diameter. Frequently these cases were not seen until all the spasmodic symptoms had passed off. It was at all times well to endeavor to quiet the patient. If much spasm existed, the throat should be swabbed out with a brush soaked in a 15-per-cent. to 20-per-cent. solution of cocaine. Then it was well to find whether reasonably strong evidence could be urged that something had really been swallowed which demanded attention. He deprecated the plan of suddenly inverting a child supposed or known to have swallowed something. The method of at once throwing the child down and then inverting it was apt to produce spasm and cause death. It was better to let the child remain perfectly quiet until the spasm had subsided. It was not well to rely on the absence of acute symptoms. The trachea would become more or less tolerant of a foreign body after a few hours. Delay in this event was much more dangerous than an operation. Tracheotomy and laryngotomy were not difficult or dangerous operations, and it was much more satisfactory to have made some effort. The question of probing should be determined by the character of the foreign body. If this was perfectly round and smooth, like a pea or bean, its use was of very questionable utility. He disputed the judgment which urged the use of probes and forceps in the trachea.

Dr. LINCOLN remarked that there could be no law laid down *ex cathedra*; each case must be a case *sui generis*, and must throw the practitioner upon his own resources. It was necessary first to know what one had to deal with and determine what should be done. As to the propriety of inverting patients, which practice had been deprecated by Dr. Powell, he thought that the

expedient had saved many lives. He should be sorry if any one were deterred from trying it. It was a simple procedure when the emergency was so great as to allow of no delay for anæsthetics of any kind. Among several cases illustrative of the vagaries to which foreign bodies in the air-passages were liable, he narrated one to show that the foreign body was not always there. He had received a summons to go at once to a gentleman's house. On arriving there, he learned that two surgeons, well known and able men, had already been sent for, they having been notified that the patient had insisted upon it that he had swallowed his false teeth. They came prepared to make an examination and passed bougies into the stomach, but failed to discover anything. The patient was very much depressed, as he had been notified of the seriousness of a contemplated operation. The speaker urged that it was utterly impossible for the teeth to have been swallowed, the size of the plate making it mechanically impracticable. While they were still in consultation a messenger arrived with a package containing the missing teeth.

The discussion then became general, many members relating interesting experiences within their knowledge of foreign bodies in the upper air-passages, and the various means adopted for their removal.

The CHAIRMAN said that cocaine had so revolutionized the work of examining the laryngo-pharynx that it could now be done with a minimum of discomfort to the patient. The parts could be quieted to such an extent that any one accustomed to the manipulation of the necessary instruments would have no difficulty. The cases should, however, without doubt, be sent to experts. He had been called in consultation to a case in the country. The doctor in attendance showed him a foreign body in the patient's throat. It was the epiglottis. The doctor, who had been working at it for some hours, had not succeeded in entirely removing it.

Book Notices.

A Manual of Minor Surgery and Bandaging, for the Use of House-Surgeons, Dressers, and Junior Practitioners. By CHRISTOPHER HEATH, F. R. C. S., Surgeon to University College Hospital and Holme Professor of Clinical Surgery in University College, London, etc. Ninth Edition. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xvi-361. [Price \$2.]

WE should be glad if this book could be placed in the hands of every student after he has passed his examinations and is waiting for the day to come when he is to enter upon his duties on the hospital staff. All through his hospital life, indeed, he could profitably keep it within reach. It is practical, and there is no need for the author to tell us that he has been a house surgeon; the book could not have been written by one who had not been one. The mutual relations between the house staff and the powers that be could not have been treated of so delicately and reasonably, neither could such sound advice have been given, by any but one who had borne his part in the battles between these two great powers.

The work differs from most books on surgery in that it deals more with those minor points the knowledge of which is usually acquired by oral instruction or simply by imitation, but which to a considerable degree conduce to success in surgical practice. It is written in the author's well-known clear style, and is creditably got up by the publishers.

BOOKS AND PAMPHLETS RECEIVED.

The Principles and Practice of Surgery. By John Ashhurst, Jr., M. D., Boston, Professor of Surgery and of Clinical Surgery in the University of Pennsylvania; Surgeon to the Pennsylvania Hospital, etc. Fifth Edition, enlarged and thoroughly revised. With Six Hundred and Forty-two Illustrations. Philadelphia: Lea Brothers & Co., 1889. Pp. xxviii-33 to 1148. [Price, \$6.]

Guide médical à l'exposition universelle internationale de 1889 à Paris. Par Marcel Baudouin, secrétaire de la redaction du Progrès médical. Avec la collaboration de MM. P. Achalme, G. Capus, P. Kerval, L. Lamotte, A. Raoult, L. Regnier, A. Rousselet. 1er fascicule—Instruments de chirurgie et de précision. Avec nombreuses figures dans le texte. Paris: E. Lecrosnier et Babé, 1889. [Prix, 3fr. 50.] [Publications du "Progrès médical."]

La pertosse e le sue vicende scientifiche. Valore ed efficacia di un metodo curativo speciale. Por Dott. G. Guidi. Firenze: G. Civelli, 1889. Pp. 99.

Disturbed Equilibrium of the Muscles of the Eye as a Factor in the Causation of Nervous Diseases. By A. Friedenwald, M. D., Baltimore. [Reprinted from the "Transactions of the Medical and Chirurgical Faculty of Maryland."]

Periostitis of the Ribs after Typhoid Fever, and its Probable Dependence on Medication. By S. O. Lewis Potter, M. D., San Francisco, Cal. [Reprinted from the "Pacific Medical Journal."]

On a General System of reporting Autopsies in American Asylums for the Insane. By H. E. Allison, M. D., Auburn, N. Y.

Il calomelano nella febbre tifoide. Per il Dott. Umberto Dieci. [Estratto dalla "Rassegna di scienze mediche."]

Biennial Report of Medical Examiner in Chief, American Legion of Honor, 1887-'84, J. Foster Bush, M. D.

The Value of the Electrical Methods employed for the Resuscitation of Persons who have ceased breathing. By H. A. Hare, M. D., and Edward Martin, M. D. [Reprinted from the "University Medical Magazine."]

Experiments to determine the Value of Oxygen in the Resuscitation of Animals poisoned by CO or Ordinary Coal Gas. By H. A. Hare, M. D., and Edward Martin, M. D. [Reprinted from the "University Medical Magazine."]

The Proposed New Lunacy Law. By Frederick Peterson, M. D. [Reprinted from the "Medical Record."]

On Unusual Methods of acquiring Syphilis, with Reports of Cases. By L. Duncan Bulkley, A. M., M. D. [Reprinted from the "Medical News."]

The Education of Girls from a Medical Standpoint. By Edward W. Jenks, M. D., LL. D., Detroit. [Reprinted from the "Transactions of the Michigan State Medical Society."]

The Ship's Surgeon of To-day. By Charles Henry Leet, Fellow of the Royal College of Surgeons, England, etc.

Contributo allo studio delle nefriti. Nota del Dott. Giuseppe Bassi. [Estratto dalla "Rivista clinica archivio italiano di clinica medica."]

Ricerche sul soffio sottoclavicolare, del Dott. Carlo Borsari. [Estratto dalla "Rivista clinica archivio italiano di clinica medica."]

Un caso di atassia locomotrice curato con la sospensione e seguito da morte. Pel Dott. Carlo Borsari. [Estratto dalla "Riforma medica."]

Un caso di attossicamento carbonico con paralisi del trigemino. Pel Dott. Carlo Borsari. [Estratto dalla "Riforma medica."]

Esiste una peritonite cronica essudativa idiopatica? Pel Dott. Giuseppe Molinari. [Estratto dalla "Riforma medica."]

A Manual of Obstetrics. By A. F. A. King, A. M., M. D., Professor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, Washington, D. C., and in the University of Vermont, etc. With One Hundred and Forty-one Illustrations. Fourth Edition. Philadelphia: Lea Brothers & Co., 1889. Pp. xxiv-25 to 431. [Price, \$2.50.]

A Reference Hand-book of the Medical Sciences, embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By Various Writers. Illustrated by Chromolithographs and Fine Wood Engravings. Edited by Albert H. Buck, M. D., New York city. Volume VIII. New York: William Wood & Company, 1889. Pp. vi-801.

Ninth Annual Report of the State Board of Health of New York. Transmitted to the Legislature February 26, 1889.

The Medical News Visiting-List, 1890. Philadelphia: Lea Brothers & Co., 1889.

Papillome et tuberculose du larynx. Par le Dr. A. Gouguenheim, médecin de l'hôpital Lariboisière. [Extrait des "Annales des maladies de l'oreille, du larynx, du nez et du pharynx."]

On Subluxation of the Head of the Radius in Children; with a Résumé of One Hundred Consecutive Cases. By W. W. Van Arsdale, M. D., New York. [Reprinted from the "Annals of Surgery."]

The Education of Girls from a Medical Standpoint. By Edward W. Jenks, M. D., LL. D., Detroit, Mich. [Reprinted from the "Transactions of the Michigan State Medical Society."]

Transactions of the Tenth Annual Meeting of the American Laryngological Association, held in the city of Washington, September 18, 19, and 20, 1888.

Report on a Second Series of One Hundred Successive Cataract Extractions without Iridectomy. By H. Knapp. [Reprinted from the "Archives of Ophthalmology."]

Constitution and By-laws of the Association of the Alumni of the College of Physicians and Surgeons in the City of New York. Incorporated May 12, 1873.

Transactions of the Medical and Chirurgical Faculty of the State of Maryland at its Ninety-first Annual Session, held at Baltimore, Md., April, 1889.

A Contribution to the Surgery of the Spinal Cord. By William Thorburn, B. S., B. Sc., M. D. (Lond.), Fellow of the Royal College of Surgeons of England, etc. With Diagrams, Illustrations, and Tables. Philadelphia: Blakiston, Son, & Co., 1889. Pp. vii-230. [Price, \$4.50.]

An Introduction to the Study of Organic Chemistry. By Adolph Pinner, Ph. D., Professor of Chemistry in the University of Berlin. Translated and revised from the Fifth German Edition by Peter T. Austen, Ph. D., F. C. S., Professor of Analytical and Applied Chemistry in Rutgers College and the New Jersey State Scientific School. Second Revised Edition. New York: John Wiley & Sons, 1889. Pp. xxi-403.

Chemical Lecture Notes. By Peter T. Austen, Ph. D., F. C. S., etc. New York: John Wiley & Sons, 1888. Pp. ii-98.

A Hand-book of Physical Diagnosis of Diseases of the Organs of Respiration and the Heart, and of Aortic Aneurysm. By R. C. M. Page, M. D., Professor of General Medicine and Diseases of the Chest in the New York Polyclinic, etc. New York: J. H. Vail & Co., 1889. Pp. viii-291.

Reports on the Progress of Medicine.

OBSTETRICS.

By ANDREW F. CURRIER, M. D.

Intra-uterine Fractures ("Gaz. méd.," March 2, 1889).—All writers now admit the possibility of accidents of this kind. Traumatic fractures now excite very little discussion with regard to their aetiology. Whatever be the manner by which the traumatism is applied, it appears to be the sole cause in such cases. Such a traumatism is usually experienced in the second half of pregnancy. It is not necessarily followed by abortion; on the contrary, the pregnancy usually continues to term. The possibility of intra-uterine fractures of the cranium is one which may involve legal questions of great importance. In fractures with any form of arrest of development or fault of conformation there is usually a history of traumatism in connection with the mother. The relations between such a traumatism and different malformations of the fœtus give rise to numerous hypotheses. There seems to be no such thing as syphilitic fracture. What has been described as such is probably of the nature of an epiphyseal displacement. Fractures of rhaichitic origin, fractures due to fragility or softness of the fœtal skeleton, might be referred to the class of spontaneous fractures. The former of these constitute a distinct nosological type; as to the latter,

histological examinations are not sufficiently numerous, as yet, to make of them a special type. The congenital fractures which occur most frequently are those of the leg. They are often associated with deformities of different kinds, which are located mainly in the limb which has sustained injury. A striking peculiarity in some cases is the complete or partial absence of the fibula. As to the variety in the complications, it seems to be about the same as in adults. Complete cure during intra-uterine life is an unquestionable fact. Treatment by osteoclasis, osteotomy, or teuotomy diminishes the importance of deformities resulting from intra-uterine fracture. Surgical intervention should be instituted at a time when there are no malformations which are incompatible with the life of the child.

Acute Meningitis during Pregnancy (Le Page, *ibid.*, March 9, 1889).

—If an acute disorder occurs to a woman who has reached the latter months of pregnancy the question often arises whether it is desirable to terminate the pregnancy artificially. Obstetricians are now almost unanimous in advising, in such cases, an expectant line of treatment—(1) because the acute disease, if severe, almost always causes spontaneous interruption of the pregnancy; (2) because the prognosis of the disease in the mother would be aggravated by operative interference; (3) because the fetus usually participates in the disease of the mother, and its existence would be compromised by such interference.

Though these are good reasons for the greater number of grave acute diseases, and especially for the eruptive fevers, they may not serve as guides for all acute diseases. Each pathological group brings its own particular indications, and this is eminently true concerning meningitis. Whether tuberculous in character or simply inflammatory, it is not rare in adult life, and may occur in pregnant women. Of seven cases which have been analyzed by Chambrelent, in six delivery did not take place spontaneously; in the seventh it occurred a few hours before the death of the mother. In all the cases in which no attempt at extraction was made, the autopsy showed that no pathological changes had taken place in the fetus. In all the cases in which the child was extracted it was born alive. From these cases it might be concluded that if a woman had reached the seventh month of pregnancy and meningitis should then supervene, premature labor should be instituted prior to the death of the mother, as one would then be able, in all probability, to extract a living child. Such a course would not affect the prognosis in the mother's case, since that is almost absolutely fatal. The objection might be made, in case of tuberculous meningitis, that it would be useless to extract a child which would probably be infected by the disease and would die a few days after birth. But the reply to this would be that it is often very difficult to decide before death whether a meningitis is of a tuberculous character, and also that the transmission of the tuberculous infection from the mother to the child may not be fatal. Furthermore, a physician has no right to anticipate the future in such a way, his first duty being to save life whenever it is possible.

The Microbic Origin of Puerperal Fever (Smith, "Traus. of the Royal Medical and Surgical Society").—The author has made cultivations in gelatin with blood taken from the heart of a woman who died from puerperal fever, and after an interval of two or three days many colonies of a micrococcus were evident. Rats inoculated with the microbe died after three or four days, the micrococcus being found in their blood. Inoculations were also made in the ears of rabbits, and at the end of twenty-four hours a circumscribed redness, without tendency to diffusion, was apparent, differing in that respect from the redness of erysipelas. The redness disappeared after two or three days. A new series of cultivations and inoculations with blood taken from the finger of a woman sick with puerperal fever gave similar results. The following conclusions were reached:

1. There exists in the blood of women suffering with puerperal fever a particular micro-organism.
2. This micro-organism is a streptococcus which differs much from others, as shown by cultivation and inoculation.
3. The action of this micro-organism upon rats and rabbits is very definite.
4. It differs decidedly from the *Streptococcus erysipelatosus* of Fehleisen and the streptococcus of Rosenbach.

Rupture and Suppuration of the Pelvic Joints during Labor and the Puerperal Period (Dührssen, "Arch. f. Gyn.," xxxv, 1).—The un-

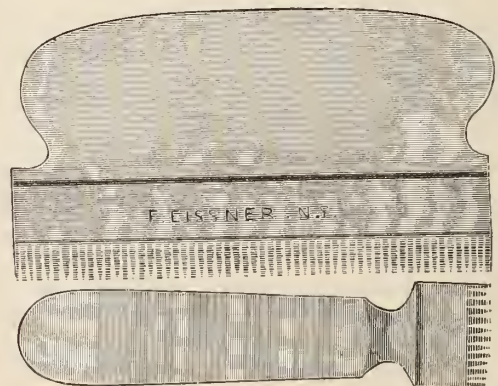
qualified statement of the text-books that the prognosis in suppuration of the symphysis is unfavorable is not strictly correct. One should not include in this class the cases in which there is general septicæmia or pyæmia, in which the prognosis is always bad. The prognosis will depend upon the treatment which is followed, and it will be unfavorable only in cases in which no incision is made. If an incision is not made, a cure will result only when there is an open rupture of the symphysis with free discharge of the pus, or when the pus is discharged from a spontaneous opening. After the pus has been discharged there is usually healing by bony callus. The causes of suppuration of the symphysis are pyæmia from metastatic inflammation of the joint; infection of a non-septic nature through a vaginal wound, which may not occur until the puerperal period; and tuberculosis. A rupture of the symphysis having occurred, the presence of fever for the first seven days does not necessarily imply suppuration. It may be dependent upon the absorption of extravasated blood. Should the fever continue, with constant pain and increased swelling in the joint, the evidence is that the extravasated blood has undergone suppuration. Suppuration in the symphysis when the latter has not ruptured may easily be overlooked. Hence, when puerperal fever without apparent cause occurs, the symphyses of the pelvis must not be overlooked in one's examinations. Incisions should be made early in order to anticipate the burrowing of pus. Extraction of the after-coming shoulders, even though difficult and requiring the use of some force, will not cause rupture of the symphyses unless there are pathological changes in the latter.

New Inventions, etc.

TWO SCARIFICATORS FOR THE SURGICAL TREATMENT OF ERYSIPELAS.

By A. SEIBERT, M. D.,
NEW YORK.

The accompanying cut represents the scarificators designed by me as best adapted for making the surgical "fence" in the healthy skin surrounding the inflamed cutis in erysipelas. The smaller instrument is used for drawing the long bloody line, and the comb-like, larger one for crossing this at right angles. The cut shows the instruments of their right size.



The scarificators are made of steel and each of one piece, have no nooks or corners, and may be easily sterilized by boiling.

In reference to the three cases of erysipelas in children successfully treated by me by my modification of the Riedel-Kraske method ("New York Medical Journal," October 19, 1889), I can now report a case of severe facial erysipelas in an anæmic woman aged fifty-eight years, which had existed for five days and had spread from ear to ear and from the chin to the scalp. The "fence" made encroached about an inch above the forehead upon the capillum, the hair being first cut off with scissors.

The temperature fell in six hours after the little operation (executed without anesthesia) from 104.5° to 99° F., the erysipelas came up to the "fence," but never crossed it, and the patient was practically well the next day and was up and about in forty-eight hours after the treatment was instituted.* Two weeks after, no trace of the work of the scarificators could be detected. The points of the instruments being partly blunt and partly sharpened, the incisions can necessarily only be made superficially and only deep enough to draw blood, thus preventing any possible future scar.

Miscellany.

Retention of Urine from Enlarged Prostate.—This condition of advanced life is met with very often both in city and country practice, and is generally easy of diagnosis, yet every consulting surgeon has seen cases where the exact condition was not made out. There are many causes of retention, but hypertrophy of the prostate gland is by far the most common. At the recent meeting of the British Medical Association held at Leeds, Dr. McGill opened the discussion on the subject, which was reported in full in the "British Medical Journal." He laid down several propositions:

1. Prostatic enlargements which give rise to urinary symptoms are intravesical and not rectal. The severity of the symptoms bears no relation to the apparent size of the enlarged gland as felt through the rectum. Nearly every man above the age of fifty-five has this enlargement, yet only about 50 per cent. have any urinary troubles. This is owing to the direction in which the gland is enlarged. An enormous gland may project toward the perinæum or rectum, and give no urinary symptoms, while severe symptoms may be produced by a normal-sized gland as felt through the rectum. The enlargement may extend toward the rectum so as nearly to fill the lower aperture of the pelvis, causing complete intestinal obstruction. He mentions several varieties of intravesical enlargement: (1) a projecting middle lobe; (2) a middle lobe with the lateral lobes forming three distinct projections; (3) the lateral lobes alone; (4) a pedunculated growth springing from the lateral lobe alone; (5) a uniform circular projection surrounding the internal orifice of the urethra. This latter variety is quite common, but has to be seen *in situ*.

2. Retention is caused by a valve-like action of the intravesical prostate, the urethral orifice being closed more or less completely by the contraction of the bladder on its contents. A patient, finding himself unable to void his urine, soon ceases the violent efforts, the pressure on the valve is lessened, the urethral orifice is released, and a small amount of urine passes away. If he attempts to expel it more quickly, the flow is again stopped and it requires several trials of this kind to get relief. The time comes when he can not get any relief, although the bladder contains urine to the amount of a pint or more. The pressure, with the consequent desire of micturition, is accounted for by the fact that a more violent contraction of the wall is required to completely than to partially empty the organ, and that its muscular coat acts to greater advantage, and consequently with greater force, in its partially contracted than in its distended condition.

3. In many cases self-catheterism is the only treatment required. Under this head we desire to speak of the careless way in which many physicians cleanse their instruments. Dipping into water and wiping with a rag is not at all sufficient to render them antiseptic. The way catheters are made makes it almost impossible to keep them clean, for in the space below the eye there is the best chance for filth to collect. The end should be solid instead of hollow. After use, the metal instruments should be put into boiling water and allowed to remain a few minutes and then passed through an alcohol flame until all organic matter within is volatilized by burning, and this should be continued until

all smoke and steam have ceased to escape. Occasionally catheters should be put into boiling water and allowed to remain an hour or two.

4. When the catheter treatment fails or is unavailable, non-radical measures are necessary. It is the writer's belief that, sooner or later, in the cases treated with the catheter the prostatic enlargement causes death. The urine becomes thick and ammoniacal, the desire to micturate becomes continuous, the passage of a catheter relieves for but a few minutes, and the suffering and discomfort are constant. The greatest care can not always prevent them, or the grossest carelessness induce them. Some patients, especially if of a nervous temperament, can not learn to use the instrument themselves. The constant attendance of a surgeon is impossible, and thus the catheter treatment fails.

5. This treatment, to be effectual, should for a time thoroughly drain the bladder and permanently remove the cause of the obstruction. Perineal drainage was introduced for the purpose of giving relief in cystitis. This relief is only temporary. Either the patient must always wear a urinal or else the urinary fistula be allowed to close with the probable recurrence of the symptoms.

6. These indications can best be fulfilled by a suprapubic rather than by a urethral or perineal operation. Dr. McGill prefers the suprapubic for the following reasons: It is more generally applicable. It can be performed with greater precision and completed with greater certainty. It insures complete and most efficient drainage. It is equally safe. He goes on to speak of the *technique* founded on an experience of thirty-seven suprapubic operations. A table of twenty-four cases is given, which includes seven cases of lithotomy. Out of this number three patients died from the operation and one from pneumonia while he was convalescent, two were under treatment when the discussion took place, and one had been lost sight of. Of the remaining ten, eight have continued well. In six of the recorded cases the prostatic retention was of long standing, and in all of them the bladder had expelled its contents since the operation. Two of the men operated upon were under the age of fifty-five. The author gives Dr. Belfield, of Chicago, the credit of first performing this operation, which he did in 1886. The discussion was participated in by ten of the leading surgeons, and it was generally conceded that this operation was justifiable in cases of prostatic retention, and would occupy a permanent place in operative surgery.

Physicians as Financiers.—The "Cincinnati Medical News" says: "Physicians are generally admitted to be exceedingly poor financiers. There is probably no class of men who realize so little financially from their labors. Persons are often astonished in how straitened circumstances many physicians, who were known during life to have had large practices, on dying, leave their families. They lived moderately; indulged in no luxuries; yet, after all debts have been paid, there will be left to the families of each one probably only a very unostentatious dwelling. For the last twenty-five or thirty years efforts have been made to simplify the business books of physicians, so that as little time as possible would be required for a medical man to enter his charges and keep something like a systematic account of his business. It has been found impossible for one engaged in the active practice of medicine to keep what is called a day-book, a cash-book, and a ledger, for with such a set of books, oftentimes not having time to enter any charges for two or three days, he will frequently forget many items. Then, again, frequently he will let his ledger go unposted for weeks and months, and when called upon to make out a bill he will in consequence not be able, and will be under the necessity of asking the applicant to call again. Visiting lists have been constructed to enable physicians more easily to keep account of their services; and they have certainly been of great use. We feel sure that through them we have saved many dollars which, without them, we should have lost. The very best book that we know of for a physician in which he can keep an account of his services to all his patrons is 'Bernd's Physician's Register.' For a physician to keep one of these requires no skill, no knowledge of book-keeping. A ten-year-old child can master it; and yet a more methodical, a better adapted method of keeping a physician's accounts could not be devised. If a doctor can not with one of these register all his business, so that he can know at any time who owes him and who does not, there will be no hope of being able to

* This patient was also demonstrated to my class at the New York Polyclinic four days after the operation.

devise anything for him so that he can keep an account of his business. We consider that the members of the medical profession are under great obligation to Messrs. Henry Bernd & Co. for their 'Register.' We hope they will have a large sale, not for the sake of the Bernds merely, but for the sake of the families of physicians."

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending November 15th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—								
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.
New York, N. Y.	Nov. 9.	1,588,363	615					8	2	15	4	5
Philadelphia, Pa.	Nov. 2.	1,040,245	399					16		10	1	
Philadelphia, Pa.	Nov. 9.	1,040,245	359					8	3	8		
Brooklyn, N. Y.	Nov. 9.	843,602	267					6	4	21		6
Baltimore, Md.	Nov. 9.	500,343	143					1	1	6		
St. Louis, Mo.	Nov. 9.	450,000	135					3	1	7		
Boston, Mass.	Nov. 9.	420,000	177					6		10		2
San Francisco, Cal.	Nov. 1.	330,000	117					9	2	1		1
Cincinnati, Ohio.	Nov. 9.	325,000	108					3		8	1	1
New Orleans, La.	Nov. 2.	254,000	110					1	1	5		
Detroit, Mich.	Nov. 2.	250,000								4		
Minneapolis, Minn.	Nov. 9.	200,000	44					6		8		
Kansas City, Mo.	Nov. 2.	180,000	38					3		3		
Kansas City, Mo.	Nov. 9.	180,000	31									
Denver, Col.	Nov. 1.	135,000	39					10		2		
Denver, Col.	Nov. 8.	135,000	43					9		4		
Rochester, N. Y.	Nov. 2.	130,000	34					2		2		
Rochester, N. Y.	Nov. 9.	130,000	29					4				
Providence, R. I.	Nov. 9.	127,000	48					4			1	
Indianapolis, Ind.	Nov. 8.	124,450	27							2		
Richmond, Va.	Nov. 2.	100,000	31					3				
Richmond, Va.	Nov. 9.	100,000	36					2				
Toledo, Ohio	Nov. 8.	89,000	27							5		
Fall River, Mass.	Nov. 9.	69,000	19					3				
Nashville, Tenn.	Nov. 9.	65,153	19					1		1		1
Lynn, Mass.	Nov. 9.	53,000	11									
Portland, Me.	Nov. 9.	42,000	13									
Manchester, N. H.	Nov. 2.	42,000	12							2		
Galveston, Texas.	Nov. 1.	40,000	10									
San Diego, Cal.	Oct. 30.	32,000	2									
San Diego, Cal.	Nov. 6.	32,000	3									
Yonkers, N. Y.	Nov. 8.	31,000	5									
Binghamton, N. Y.	Nov. 9.	30,000	5									
Altoona, Pa.	Sept. 14.	30,000	8					1				
Altoona, Pa.	Sept. 21.	30,000	10					1				
Altoona, Pa.	Sept. 28.	30,000	5					1		1		
Altoona, Pa.	Oct. 5.	30,000	13							2		
Altoona, Pa.	Oct. 12.	30,000	8					1		1		
Altoona, Pa.	Oct. 19.	30,000	2							1		
Altoona, Pa.	Oct. 26.	30,000	5							1		
Altoona, Pa.	Nov. 2.	30,000	8					1		1		
Altoona, Pa.	Nov. 9.	30,000	8							1		
Haverhill, Mass.	Nov. 9.	25,000	11									
Newport, R. I.	Nov. 7.	22,000	4									
Newton, Mass.	Nov. 9.	21,553	9							3		
Rock Island, Ill.	Nov. 3.	16,000	6							4		
Keokuk, Iowa.	Nov. 2.	16,000	4							1		
Keokuk, Iowa.	Nov. 9.	16,000	4							1		
Pensacola, Fla.	Nov. 2.	15,000	5									
Pensacola, Fla.	Nov. 9.	15,000	7							1		

The Health of Connecticut.—According to the State Board of Health's "Monthly Bulletin," the total number of deaths reported from 166 towns during the month of October was 1,027, including 7 from scarlet fever, 6 from cerebro-spinal meningitis, 71 from diphtheria and croup, 12 from whooping-cough, 37 from typhoid fever, 10 from malarial fever, and 13 from typho-malarial fever. There were also 148 deaths from consumption, 64 from pneumonia, and 34 from bronchitis.

The Health of San Francisco.—According to the Health Department's "Condensed Statement of Mortality" for October, the whole number of deaths was 507, including 2 from cerebro-spinal meningitis, 14 from cholera infantum, 10 from croup and diphtheria, 3 from erysipelas, 30 from typhoid fever, 2 from whooping-cough, and 3 from scarlet fever.

The New York Academy of Medicine.—At the next meeting of the Section in Laryngology and Rhinology, on Tuesday evening, the 26th inst., Dr. H. Holbrook Curtis will report "A Case of Cocaine Habit, with Remarks on the Dangers of the Use of Cocaine"; Dr. George H. Fox will report "A Case of Erythematous Lupus of the Face and Oral Cavity"; and there will be a discussion (by Dr. G. H. Fox, Dr. S. Sher-

well, Dr. E. B. Bronson, Dr. L. D. Bulkley, Dr. R. W. Taylor, and Dr. M. J. Ashe) on "Lupus of the Respiratory Mucous Membrane."

The programme for the next meeting of the Section in Obstetrics and Gynecology, on Wednesday evening, the 27th inst., includes the following titles: "General Observations on the Use of Electricity in Gynecology," by Dr. A. D. Roekwell; "The Treatment of Certain Pelvic Tumors by Galvano-puncture and Drainage by the Vagina, and Intra-uterine Galvanization," by Dr. A. H. Goelet; "The Galvanic Treatment of Uterine Fibromata," by Dr. E. L. H. McGinnis; "Notes regarding the Treatment of Fibromata by Electricity," by Dr. A. H. Buckmaster; and "The Value of Bipolar Faradization in Gynecology," by Dr. A. Laphorn Smith, of Montreal. Dr. P. F. Mundé, Dr. E. H. Grandin, Dr. J. H. Gunning, and others, of New York, Dr. Franklin H. Martin, of Chicago, and Dr. G. Betton Massey, of Philadelphia, will take part in the discussion.

Armour's Beef Extract.—Sir James Grant, of Ottawa, Canada, is reported as having said, after having had this preparation under observation for some months, that it has given great satisfaction as a vigorous restorer of strength in cases where a liquid form of diet was necessary.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed. (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

THE CARTWRIGHT LECTURES

ON

VITAL AND MEDICAL STATISTICS.

DELIVERED BEFORE THE ALUMNI ASSOCIATION OF
THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK,
November 14, 20, and 22, 1889.

By JOHN S. BILLINGS, M. D., LL. D.,
U. S. ARMY.

LECTURE I (ABSTRACT).

I PURPOSE in these lectures to speak of vital and medical statistics, and of some of their relations to each other and to scientific and practical medicine and sanitation. The discussion will include such points as character of the data required; methods of obtaining them by the census, by registration, and in other ways; relations of physicians to this kind of work; methods of compilation and forms of publication; the best existing sources of such data; and some of the more common fallacies in drawing conclusions from the data as ordinarily published.

These and other points will be considered in their practical application to certain questions which, I hope, may be of interest to you, both as citizens and as physicians, as for example: Is the average longevity of man in civilized countries increasing? What data are required to practically judge of the relative healthfulness of different localities, or of the same locality at different times? What are the relations of certain forms of disease to race, to climate, to locality, to occupation? What is the relative tendency to increase of population in this country in the white and colored races? What is the statistical evidence with regard to improvement in practical therapeutics as arrived at from hospital data, from death-rates in obstetric practice, etc.?

Statistics and discussions of statistical methods are, as a rule, dry and uninteresting subjects, and it is with very considerable doubt and hesitation that such a topic has been selected for these lectures. I have no new discoveries to announce, and those who are practically familiar with statistical research will find some of my statements rather elementary; but the subject is not one which lies within the ordinary range of medical studies, the data are widely scattered in literature, and I hope, at least, to be able to remind you of some of the numerous points which you may have once known, but which may have been forgotten owing to the pressure of other studies and duties.

Statistics are somewhat like old medical journals, or like revolvers in newly opened mining districts. Most men rarely use them, and find it troublesome to preserve them so as to have them easy of access; but when they do want them they want them badly.

There are many fallacies and errors connected with vital and medical statistics as ordinarily collected and used, and it is highly desirable that the physician should be aware of the more important of these, since he is constantly appealed to for decisions as to their true significance and value. "It

is as easy to tell lies with figures as with words, and bigger ones"; but while we occasionally meet with deliberate falsifications of the records, made for the purpose of magnifying or diminishing the apparent mortality or prevalence of a particular disease in a given locality, or to maintain an anti-vaccination thesis, these are not so frequent as are the errors of involuntary misstatement and misinterpretation into which those not familiar with methods of collecting and tabulating statistics are so liable to fall. Those who are not familiar with the methods of obtaining and compiling statistics of this kind are apt to be either unduly credulous or unreasonably skeptical as to their real use and value—to use the first figures which come to hand, and thence derive conclusions which are not warranted, or to reject the plain teaching of carefully compiled statistics in favor of general assertions which have no firm foundation, but which are in accord with preconceived opinions. My experience with those seeking statistical data is that the majority begin by looking for those data which are in favor of some particular conclusion with which they commence, rather than by selecting data with reference to their probable completeness and accuracy, and accepting the conclusions which may be legitimately drawn from them, whatever they may be.

Those who are engaged in the collection and compilation of official mortality and vital statistics are often at first the most skeptical as to their accuracy and utility, for their attention is so frequently and forcibly drawn to errors in the individual data that they conclude that the whole mass is unreliable; and the difficulties in the way of obtaining complete and reliable figures are seen to be so great that they incline to give up the whole matter in despair. Continued study of the subject, however, shows that many valuable conclusions or suggestions can be derived from imperfect data, and that in large masses of figures the errors either tend to neutralize each other, or to produce a constant effect in one direction which can be calculated and allowed for, so that those who have had the greatest experience are most convinced of their value. It is true that, in statistics, the inferences can not be more accurate than the data on which they are founded, but we do not look for scientific exactness from them so much as for an estimate of probabilities.

The methods which we have for advancing our knowledge of the laws of human life, of the causes of abnormality, disease, and death in man, and of means of sanitation or therapeutics, may be grouped into two classes—viz., observation and experiment—which, however, are often combined.

In the experimental method we seek to make a direct test of the variation of one particular condition, or set of conditions, upon the living organism, all other conditions being kept uniform as far as possible. Some such experiments can be made on man, but the greatest number of the problems which we may hope to solve by this method, and among these the most important, can only be approached by experiments on the lower animals. Within the last twenty years experimental physiology and pathology have

made great advances, and these methods, so far as they are applicable, give more definite results, and are more immediately satisfactory, than those derived from comparison of observations in which no definite experimental variations have been made; but so far as regards causes of disease, or the action of supposed methods of prevention, or of remedies, it is unfortunately the case that we can not draw accurate conclusions as to what will happen in man from what is observed to happen in animals. In the first place, there are many forms of disease in man, and those among the most important, as regards the suffering and loss of productive power and of life which they produce, which can not, with our present knowledge, be experimentally produced in animals, and which rarely or never occur in them.

For example: Yellow fever is a disease which, from analogy, we have reason to believe may be due to the action of one or more specific micro-organisms, or, perhaps, I should say, to the products of such organisms. We find a dozen different kinds of bacteria in persons suffering from yellow fever, and, by dint of much labor, these have been isolated and cultivated outside the human body. The problem is to determine positively, and with scientific precision, which, if any, of these is the true, essential cause of the disease. The mode of doing this is by producing the disease in a perfectly healthy person or animal by the inoculation of the suspected organism. But, thus far, we have failed to find any animal in which a disease, which can be considered as specifically identical with yellow fever, can be produced by any method; and I need hardly tell you that inoculations of such a disease as this in a human subject, under conditions which would make the results of such inoculation scientifically trustworthy, are impracticable and unjustifiable.

Those forms of disease which are common to animals and man—such, for instance, as anthrax, tuberculosis, tetanus, hydrophobia, the ordinary forms of suppuration, and also typhoid fever—are being pretty thoroughly worked out by means of such experimental inoculations as I have just referred to; and we are able to say, with a great degree of precision, not only that these diseases are due to specific forms of bacteria, but to determine enough of the characteristics of these forms to be able to identify them wherever they are found.

This method of observation may, for our purposes, be again divided into two categories. The first is that which is used in individual cases, being the form applied by the physician to each case which he has to treat. It also includes the sort of investigation which may be made in a single household, a small community, or a thinly populated district, to determine the course and cause of a particular form of endemic or epidemic disease, where the conditions affecting each family or dwelling can be studied in detail somewhat as the detective of modern fiction follows his clues. By the combination and comparison of detailed studies of this kind the greater part of our present system of diagnosis, prognosis, and therapeutics have been evolved; but it has been and will be a slow process, for each man differs from every other man in structure and mode of function, and the conditions of the environment are so multi-

form, and so variable in space and time, that "experience is doubtful, and judgment difficult." We must therefore try to supplement the information thus obtained by that derived from the second kind of observation above referred to—namely, that of collecting a few data with regard to great numbers of people, especially where these are accumulated in thickly settled localities, forming what is called the statistical method as applied to different communities. By the first method we compare individual with individual, and do so with considerable minuteness of subdivision of the conditions studied; by the second method we compare the vital phenomena of communities with those of other communities, but only on broad lines and in relation to circumstances easily noted.

The essential data of vital statistics are derived from enumerations of the living population and from records of births, marriages, and deaths. The numbering of the people is effected by a census, a term derived from the Roman Censors, a part of whose duty was to make such counts. Such enumerations were made by Moses (1490 B. C.), David (1017 B. C.); in Greece, 650 B. C.; and in Rome, beginning 566 B. C. They were probably made also in Assyria, but the Assad records have not yet been found. In modern times the first country to make a count was Sweden, in 1749. The first census in the United States was taken in 1790, as a necessary means of carrying out the constitutional provision that the basis of representation for the several States should be the number of the population in each. The first census in England was taken in 1801, and showed the number of persons, with distinction of sex, the number of houses, the number of families, and a rough statement of occupations under the general classification of agriculture, trade, manufactures or handicraft, and all others.

In the first censuses the object was to determine the number liable for military service or qualified to vote, or to fix rates of taxation, and the records were very brief. In the first United States Census the only data called for on the schedules were names of heads of families, free white males over sixteen, free white males under sixteen, free white females, all other free persons, slaves.

One of the most interesting fields of study in vital statistics is the relation of race and color to birth-rate, to certain forms of disease, or to the liability of death at certain ages. This country is, as you know, the great mixing ground for different races of the human family, and, while the mixture is rapidly becoming so intricate as to make it impossible to distinguish the several strains, it is still true that there are in this country large groups of men of quite distinct races, the record of disease and death in which would form valuable material for study upon this point were it possible to collect them.

From the sociological and political point of view this is particularly the case with regard to the negro and to those having a mixture of negro blood; and in the Southern States such questions as the following are of great practical interest: Is the negro population increasing faster than the white? Is the proportion of mixed bloods, such as mulattoes, quadroons, etc., increasing in proportion to the general population? Are the fertility and expectation of life of

mixed bloods greater or less than those of pure whites or pure blacks under the same circumstances of environment? We will return to these questions hereafter; at present I merely refer to them as being the probable reason for the introduction into the law for taking the next census of a special clause providing "that the population schedule shall include an inquiry as to the number of negroes, mulattoes, quadroons, and octoroons," an attempt to obtain information which has not heretofore been sought in this way. In obtaining the records of deaths occurring during the census year beginning June 1, 1889, an effort will be made to have the deaths of colored persons distinguished into those of pure negroes and those of mixed blood. It will probably be impossible to obtain the data for either living population or deaths with the minuteness of subdivision indicated by the words "mulatto," "quadroon," and "octoroon"; but there is reason to hope that in many sections of the country we shall be able to distinguish those of mixed blood from the pure blacks and the pure whites, and to give some opinion with regard to their diseases and death-rates. The results of the last census, although imperfect, show such marked differences as regards the mortality from certain diseases, not only between the whites and the blacks, but between those of English, Irish, and German descent, as to make it certain that it will be worth while to pursue this branch of inquiry more minutely as opportunity is offered to us hereafter.

The influence of race upon mortality is specially manifest in the death-rates of cancer. The number of deaths from cancer per 100,000 population in certain portions of the United States, with distinction of white and colored, was as follows: White, 27.96; colored, 12.67.

In the northern part of the United States the proportion of deaths from cancer in proportion to one thousand deaths from known causes, with distinction of white, colored, Irish, and German parentage, was as follows: White, 19.1; colored, 7.8; Irish parentage, 24.3; German parentage, 25.8.

It will be seen from these that the liability to death from cancer is not half as great among the colored people as it is among the whites, and that there is a greater tendency to death from cancer in persons of German parentage than in all the average white population, especially between the ages of fifteen and sixty-five.

The relation of race to vital phenomena in general, and to disease- and death-rates in particular, form one of the most interesting branches of what Galton calls the "science of heredity," but it is a branch in which little progress has yet been made, and for the study of which the United States offers greater opportunities than any other country. "The question of race influence is not merely an abstract matter fitted only for well-rounded periods in the discussions of the schools, but it profoundly affects vital and national life." It is a force which acts incessantly upon and menaces us, and so far as we can now see, it is mainly upon the outcome of the distribution and prevalence of race that depend civilization, religion, and the future of man upon this earth. "In so far as the conditions of things tend to preserve the best types, progress is favored. In so far as they tend to destroy or to debase them with inferior types, progress is

hindered. Not every mixture of race prevails, or persists, but there has been a certain amount of mixture wherever there has been progress in human affairs. Such mixture appears to have been a consequence rather than a cause, yet it may become an important secondary cause in changing or modifying the course of human events."

The census gives us a view of the population on a certain day, and, if well taken and properly compiled, it gives a general view of the stream of life as it flows on that day, with its variations of breadth and depth, from which it is possible to calculate, within certain limits, the velocity of the current, the rapidity of change, and the probable rate of increase or decrease, especially if comparisons can be made with the results of a previous census taken in the same way. It may also indicate periods of wide-spread disaster or of migration.

In general, we may say that the census indicates the state of the population at a given period. Vital statistics, however, consider both the state and the movement of the population, and therefore for these we must have something more than the census, viz., a record of the deaths and births occurring in successive periods, from which we can compute mortality and natality rates.

Mortality, or mortality rate, refers to a ratio between the number of deaths occurring and the number of living population furnishing those deaths. It is to be distinguished from a statement of the number of deaths, since to determine the mortality in a given population, we must not only know the number of deaths, but also the population furnishing that number. $M = \frac{D}{P}$. In the same way, natality does not mean the number of births, but it means the ratio of the number of births to the population in which they occur. $N = \frac{B}{P}$.

The relations between mortality and natality are very important, as I shall have occasion to explain hereafter. The value of such statistics depends, of course, on the accuracy of the individual data, and the completeness with which these data are gathered for the given locality to which they relate.

Accurate data with regard to deaths can only be obtained by a system of registration of deaths made at the time they occur. Repeated experience has shown that it is utterly impossible to collect, at the end of a year, by any mechanism of enumeration, more than seventy per cent. of the deaths which have occurred during the preceding year, and it is now well recognized that a complete registration of deaths can only be secured by legislation which forbids a burial until a permit has been granted from a central office, which permit is issued only on the certificate of a physician, setting forth the cause of death and other facts connected with it which are of importance, and which will be presently referred to. In the great majority of cases it is comparatively easy to enforce the law, even in thinly settled rural districts, and the community soon learns to consider any attempt at burial without a permit as a suspicious circumstance, indicating a desire to conceal either the death or the cause of death, and justifying a special investigation

by the authorities. When it has been decided to require a burial permit in all cases, it is not usually difficult to require the data for registration as an indispensable preliminary to the issuing of such permit.

Any system which depends upon the returns of undertakers for a record of deaths, gives incomplete and unsatisfactory results. It is only where the permit must be obtained before burial and the certificate must be filed at a central office before the permit is issued, that a complete record of all deaths will be obtained. Any complete system of death registration should include some method of verification of the death and of its cause, which must be certified to by some person having the special knowledge which alone can enable him to give such a certificate.

In the first place, we must have this verification to insure the fact of a death having taken place. In its absence, in a large city, there is little or no difficulty in having recorded the death of a person who may be either alive and well, or non-existent, and the door is thus opened to frauds of various kinds, some of which have actually been attempted and discovered, while others, no doubt, have been successful and remain still unknown. Such verification is also necessary to insure the fact of real as opposed to apparent death in any case, and thus prevent premature burial.

The utility for this latter purpose is, of course, small, for the popular idea as to the frequency of trance or other conditions simulating death, so that the true state of affairs is not detected, is, as you all know, grossly exaggerated. Nevertheless, this consideration may enter as a factor into an argument in favor of such skilled verification. The main reason, however, for the verification of a death by expert testimony as to its cause, is that it is necessary to establish the fact that a death has taken place from what may be called natural causes as opposed to criminal causes.

This verification of death and of the causes of death may be made either by physicians employed for that particular purpose and paid by the state, or by the physician under whose charge the deceased person has been immediately previous to death; in which latter case only those cases which have not been under the treatment of a physician are referred to a public medical officer, or the coroner, for verification and determination of the cause of death.

The first system is that which is employed in France, Austria, and Belgium. The second is the one made use of in England and in this country.

All registration laws include the certificates of physicians as an essential part of their machinery. Some do this directly, requiring that physicians shall keep a list of all deaths occurring in their practice, and shall forward this list at stated times to the registrar. This method has invariably proved to be a failure, as has also the similar attempt to require of clergymen that they shall furnish lists of the marriages which they have solemnized. It is utterly impossible to enforce such laws under penalties, and not fifty per cent. of either clergymen or physicians will carry out their requirements under ordinary circumstances.

Where burial permits are required, a physician may be made responsible for a certificate as to those matters only with regard to which his special professional knowledge is

necessary—such as the cause of death, duration of sickness, etc.; or he may be required also to certify as to the age, birthplace, parentage, occupation, etc. The great majority of physicians accept without hesitation the data furnished on these points by some member of the family, or whatever appears set down in the form of certificate brought to them by the undertaker for signature. But there are always physicians who question the propriety of the law and object to certifying to that of which they can have no personal knowledge, while some few may possibly decline.

The requirements of a registration law impose upon medical men who sign certificates as to causes of death a very considerable responsibility—much more considerable, in fact, than many of them probably realize. The physician is to consider whether his knowledge of the case is sufficient to enable him to determine whether or not the death was due to what are called natural causes, whether there is reason to suspect that violence, poisoning, criminal neglect, etc., may have been more or less factors in the result, and whether any certificate as to the nature of the cause is justifiable. The pressure upon the medical man to certify to more, or sometimes less, than he knows, is occasionally very strong, but the only course in doubtful cases is to indicate clearly what one knows, as distinguished from what he merely believes on the faith of statements made by others. In ordinary matters of daily routine occurrence, in which there is no apparent motive for falsification, we constantly do, and must, accept the statements of others; the physician acts as the primary judge of the evidence submitted by relations and friends as to the time of death, the age and race of the decedent, the duration of the disease, etc., and is justified in certifying to his belief in this evidence, very much as he is justified in certifying to the date of his own birth.

There is no good reason why reports of births should be required from medical men. But, as regards reports of deaths, it is to the interest of properly qualified members of the medical profession that such certificates should be demanded from them. Whenever and wherever certificates as to the cause of death are required from physicians, there must also be established some system of determining who are physicians within the intent of the law.

At first it may be necessary to accept certificates from any one and every one who chooses to call him or herself a physician; but the character of some of the documents of this kind which will come in will very soon indicate the necessity for some discrimination. Thus it is that the certification of the causes of death by physicians is the essential foundation, and it is the only essential foundation, of legislation with regard to the qualifications which the state has a right to demand from practitioners of medicine.

The registration of marriages, births, and deaths is important to the individual, because it gives him increased security in his rights to property and to life by enabling him to furnish proof of parentage and legitimacy, by increasing the chance of detection of fraudulent claimants to property of which he is the true heir, and by discouraging criminal attempts to shorten his life, owing to the fact that evidence must be furnished that death was due to natural

causes, or a special legal investigation of the circumstances will be made. Of the importance to the community as a means of protection of health and life, and to scientific men and physicians as a means of investigation of some of their problems, I need give no proof to this audience.

We can hardly be said to have a complete system of registration of births in any State or city in this country. Probably the city of Providence, R. I., has the most complete records of this kind of any of our cities. As regards the registration of deaths, Massachusetts, New Jersey, the greater part of Connecticut and New York, a large part of Alabama and Minnesota, and most of our large cities, have now a fairly satisfactory system and complete record. For the rest of the United States there is either no system of registration, or, if any exists, it is a very imperfect and incomplete one, the results of which can not be depended upon, and which can not be compared with the results obtained in the localities above referred to as having a complete system; and the only means which we have of estimating the mortality of these localities is by the reports of deaths for the preceding year collected by the census enumerators.

It is for this reason that the decennial United States Census is a matter of such great importance to scientific medicine and to practical sanitation—of much greater importance, in fact, than most physicians and health officials seem to fully appreciate. It is true that the death records thus obtained in the large areas of the country in which there is no registration are incomplete and, as regards causes of death especially, inaccurate; but they are the best we have; they are becoming better at each census, and the death records in the registration areas serve to measure their reliability, and to indicate to some extent useful corrections.

As the value of statistics of death depends very largely upon the possibility of comparing them with corresponding statistics of the living population furnishing those deaths, it is evident that the modes and times of obtaining and of publishing the results of the census are matters of great importance to medical and sanitary statisticians. This is especially true as to the frequency with which a census is taken, the units of area made use of in its published tables, and the combinations of age, sex, race, and occupation data given in connection with such units of area.

Let us first consider briefly the time of taking the census.

The conclusions of the various statistical congresses with regard to the methods of the census are summed up by Korosi in his project for a census of the world, published in 1881.

The first of these conclusions was that the census should be taken every ten years, in the month of December and in those years the number of which terminates in zero, recommending, however, that intermediary censuses should be taken at the discretion of different governments.

The taking of the census at the end of December has the advantage that a relatively greater number of population are in their own homes than at any other time, and that it corresponds to the termination of the calendar year, at which date many State and municipal reports ter-

minate, so that all the figures being for one date are readily comparable with each other. For a very large part of this country it would be quite as easy to take the census at the end of December as on the 1st of June; but there are some sections in which attempts to take the census in the midst of cold and rainy weather for a thinly scattered population would be made under very great difficulties.

While it is not probable that any agreement for an annual census of the whole country will be made in the near future either by the United States or by State Governments, it is certainly quite possible that the desirability for more frequent enumerations in the larger towns and cities will soon become so evident as to lead to systematic arrangements for carrying it out. Even now many cities take what they call a police census, at irregular intervals of from three to five years, for the purpose mainly of making rough subdivisions of the voting populations in the form of precincts, and of obtaining information for the purpose of levying taxes, more especially for school purposes. These police censuses, however, relate only to adult males, and upon them are based estimates of the number of the remaining population, which are used by the sanitary officials in computing death-rates. These estimates, however, are almost invariably too high, as is shown by the next State or national census, and in any case afford no satisfactory basis for computation as to the number of inhabitants in the different wards of the city owing to the great variations in the ratio between the voting population and the rest of the people in different classes of society and in different parts of a town.

The death-rate, or mortality, is the ratio between quantity of life and loss of life. It refers to a definite unit of time, viz., one year's life of one person, and the quantity of life is the sum of the time lived by each of the population expressed in years. Two persons living six months each, or twelve persons living one month each, have one year of life. If the population is assumed to be stationary—that is, one in which the births and deaths, and the emigration and immigration, are exactly equal to each other and similarly distributed throughout the year—then the number of the population multiplied into the time under consideration expressed in years and fractions of years gives the quantity of life.

A population usually, however, increases in geometrical progression, and in such case we must find, by means of a well-known formula, the mean population of the period, which will be less than the arithmetical mean of the populations at the beginning and end of the period and greater than the population living in the middle of the period; but the differences are small, and, in most cases, either figure may be employed.

Various methods are used by statisticians to correct the estimates of population made for a city at periods other than during a census year, as determined by a formula of arithmetical or geometrical proportion, among which may be mentioned the use of the ratios supposed to exist between the number of houses or the number of voters, or the number of school children and the total population. The number of houses is determined from tax records or

by a special count; the number of voters by registration lists or by a police census; the number of school children by a special census; and the ratio which these bear to the whole population is guessed at or is calculated from the data obtained at the last census.

The most useful and reliable of these methods is the use of the average numbers of presumed occupants of inhabited houses, the other ratios being of very little value.

This has been very well shown by Dr. Russell, Medical Officer of Health at Glasgow, in a paper on "The Decennial Census as a Basis for Statistics in Intervening Years," Glasgow, 1881. In the case of Glasgow he considers the estimate of her population based on the number of inhabited houses, and the estimate based on preceding censuses, and finds that both methods give a population above the actually existing one as shown by the next census. The error in the estimates based on the previous census was due to a change in rate of growth. The error in that based on the number of houses was due partly to incorrect data of the number of inhabited houses, and partly to an error in calculation.

It is evident that no value can be placed on estimates of population of a city based upon the number of habitations it contains if a cottage and a tenement-house are to be equally reckoned as a habitation.

Estimates of the population based on police censuses, on the number of school children, or on city directories, are of very little use, being, in almost every case, in excess of the truth. No general rules can be laid down for the estimation of the population of a city at a period between two censuses. It is a special problem in each case, for the solution of which there is needed an acquaintance with the locality, to be sure that boundaries have not changed, the information which can be obtained from special local censuses, from the number of inhabited buildings, from migration statistics, etc., all of which must be applied to the data furnished by the last general enumeration of the people, which, in any case, must be resorted to for the ratios which are to be used.

The shorter the period for which a death-rate is given, the greater is the liability to error. The ordinary forms of weekly death-rates reported for large cities are annual death-rates; that is, they represent what would be the annual death-rate if the proportion of deaths to the population for the week continued for one year. If, for example, a town having a population of 100,000 reports as its weekly death-rate for a given week 25 per 1,000, this does not mean that during the week there occurred 2,500 deaths, but it means that if the population and number of deaths each week are continued the same during the year, 2,500 deaths would have occurred in the course of the year, or that for the week in question the number of deaths was 2,500 divided by $52 \cdot 17747$. A weekly death-rate is useful to show where the greatest variations have been in the year's mortality, but it is no indication of the health of a town for a particular week, and it is useless as a means of comparison of the healthfulness of one town with that of another. This is largely due to the law of probable deviation or error in mortality statistics in rela-

tion to the number of instances used as data without reference to their accuracy. This law of probable error in relation to number of data is an exceedingly important one, to be kept in view in all statistical inquiries, and especially in those relating to vital and medical statistics.

What is a fair or normal death-rate? Taking an average healthy rural district in the United States, where there is little migration, the annual gross death-rate for the whole population will be from 13 to 15 per 1,000. In towns of from 10,000 to 15,000 inhabitants, having a good general water-supply and proper sewerage, the gross death-rate should not exceed 16 per 1,000. In cities of from 20,000 to 100,000 inhabitants it should not exceed 17 per 1,000, while in cities of over 100,000 inhabitants it should not exceed 19 per 1,000. The great causes of high death-rates are poverty, overcrowding, intemperance, excess in heat and cold, with moisture, foul air, bad food, impure water, uncleanness, contagion, ignorance, etc.

Births and Birth-rates.—The statistics of births are of much importance in vital statistics, because of the influence of the birth-rate upon the sex and age distribution of the population. Unfortunately, in this country, as I have already explained, hardly any locality possesses such an enforced system of registration of births as to permit of an annual calculation of birth-rates and their comparison with the deaths of children under one year of age, or those born within the year. We can only obtain these data for any large extent of country by referring to the census records.

The usual method of indicating the birth-rate is by giving it as the proportion per one thousand of births to the population of all ages; but a much better and more satisfactory mode of computation is to calculate the number of births to the number of women between the ages of fifteen and fifty or fifty-five living in the community referred to.

The general subject of birth-rates is interesting chiefly, in relation to social statistics, to the fecundity or rate of increase of population or of people of different races; but in relation to mortality statistics, it may also become an important factor in the calculations.

There have been from time to time some controversies between statisticians and health officers with regard to the influence of birth-rates upon death-rates, or as to the precise relations which exist between the two. As the death-rates of infants are much greater than those of the population at higher ages, it has been claimed by some that where there is a high birth-rate there also is a high death-rate; but it can not be said that this will invariably be the case, or that the one is directly the cause of the other, except in certain cases for a comparatively short series of years.

As a rule, high birth-rates occur in cities, and in the crowded parts of cities, among the laboring classes of the population, where the causes of disease and death in infants are especially prevalent. On the other hand, it is to be noted that a high death-rate among infants has some tendency to increase the birth-rate, because the interval between child-bearing is shortened by the early death of the infant; and in the effort made by poor women to avoid frequent child-bearing, a common means is to suckle the infant up to at least two years of age, in order to prolong the

interval between pregnancies—which is a practice injurious both to the mother and to the child.

If we had under consideration a community in which there were no migrations, and in which the population neither increased nor diminished, the relations between birth-rate and death-rate and the average duration of life could be expressed by a simple formula, in such a way that, given either two of these quantities, we could determine the third. If, for example, in a population of one thousand persons, five births and five deaths occur annually, and if we assume that every individual lives to the same mean age, evidently just two hundred years would elapse before the whole of the original one thousand would have died. This two hundred years would be the mean duration of life, and this would be the case also if deaths occurred at different ages, only in such a case many would die below the mean age, when some would greatly exceed it. This subject has been considered by Dr. J. S. Bristowe in a paper "On the Mutual Relations of the Birth-rate and Death-rate."* From the table which he gives I have extracted that part which shows the mean duration of life under certain conditions of birth-rate and death-rate, where the birth-rate varies from three to five and the death-rate from fifteen to thirty-five in a thousand.

Dr. Bristowe says: "There can be no difference in the healthiness of two localities in one of which the death-rate is twice as high as that of the other, provided other conditions are such that in both cases the inhabitants attain the same mean age; or, conversely, supposing different populations to enjoy the same mean duration of life, any differences which may be presented by their respective death-rates are due to other circumstances than differences of health." He also says that the average duration of life can be determined by the birth-rate and death-rate taken together, but not from the death-rate alone. If he means by healthiness mean duration of life, this statement is equivalent to saying that, where the mean duration of life is the same it will be alike—an indisputable proposition, though not a very instructive one. But if by healthiness is meant the sum of the conditions of the locality as to altitude, drainage, cleanliness, etc., which tend to lessen or increase deaths in the people living in it, then the statement is incorrect, for it does not take into account age, sex, or race distribution, occupations, or migrations. Setting the question of migrations entirely aside, it is perfectly possible that two populations, attaining the same mean age and having the same death-rate, may live in two localities, one of which is decidedly healthier than the other; so that, if the two communities exchanged habitations, a marked difference in the death-rates and mean age at death would result.

Putting aside all these purely speculative considerations with regard to what might happen in a stationary population where there is no migration, let us see what the significance of death-rates is in our cities and rural districts as they now exist. We wish to know how much of the death-

rate is due to peculiarities in the character and occupation of the population itself, and how much to peculiarities in the locality, and for each of these classes we wish to know how much is necessary and unavoidable, and how much is due to causes which may be modified or done away with. Precise knowledge on these points we can never have, but we can obtain a sufficient degree of probability to guide our action in the premises.

If we wish to study carefully the influence exerted upon health and life by race characteristics, by residence in a given locality, by marriage, occupation, social standing, etc., we must have the means of comparing results given in different localities, or in the same locality at different times, or for different races, occupations, etc., under like circumstances.

To accomplish this we must, as far as possible, estimate the influence of other circumstances not connected with the particular point which we are investigating, but which, notwithstanding, exercise a powerful influence upon sickness and death-rates, and of these the two most important influences are those which differences in proportion of sexes and ages of the population to be compared exert.

The means recognized as best calculated to eliminate the influence of sex and age by, as it were, reducing the population to one uniform scale in these respects is by calculating the expectation of life at each age for all the several conditions of locality, occupation, etc., which we wish to investigate; in other words, by the preparation of what are known as life-tables. A life-table shows what would be the tendency or liability to death at each age in a population in which there is no migration and in which the births and deaths just equal each other if such a population were subjected to the same influences tending to produce diseases and death as have affected the actual population under consideration and from which the data are derived. It is, of course, impossible to prepare life-tables which shall be strictly accurate and exactly comparable one with another, because it is impossible to obtain strictly accurate data. A life-table is intended to answer the question, "Of a million children born, how many of each sex die at each age?" or, "What is the time which a man or woman of a given age may be expected to live?" A strictly accurate answer to this question could be given only if we knew the precise dates of birth and death of each of a million of children born under the circumstances we are investigating, and, strictly speaking, these million children should all be born on the same day. Notwithstanding, by using large masses of data which are more or less attainable and by applying certain well-known corrections, the individual errors tend to neutralize each other, and we can prepare tables which will be quite accurate enough for purposes of comparison.

A vast amount of labor has been expended upon, and study given to, this subject; for immense business interests and important points in the jurisprudence of inheritance depend upon the existence and accuracy of these tables. Hundreds of millions of dollars have been, and now are, invested in life insurance on the faith that certain life-tables truly represent the average course and duration of the

* "St. Thomas's Hospital Reports," New Series, vol. vii, London, 1876, p. 245.

life of a particular class of the community—and the result of more than a hundred years of experience has been applied to their correction under the powerful stimulus of urgent need, from a pecuniary point of view, to have them as accurate and reliable as possible.

In order to prepare a life-table for a given locality or occupation, we must know the number of persons living at each year of age, and the number of deaths at each age which have occurred among these persons for one or more years. We assume that deaths have occurred at regular intervals during the year for each age and proceed to compute the number of persons at each age who were living in the middle of the period for which the deaths are registered.

In using census data, however, we can not directly compare the deaths at each single year of age with the number reported by the census as living at that age, because of the strong tendency of the average man or woman to report ages either of the living or of the dead, but especially the former, in numbers which are multiples of ten or five, or in so-called round numbers.

I do not propose to describe the methods of constructing a life-table. To make one sufficiently accurate to be used for the purposes of life insurance requires elaborate calculations and corrections, and the use of complicated mathematical formulæ; but the construction of an approximate life-table, in which no attempt is made to secure regular gradation, is a comparatively easy matter and has been fully described by Mr. N. H. Humphreys in a paper in the "Journal of the Statistical Society" for 1883, which method was made use of in calculating the approximate tables given in the mortality statistics of the last census.

Original Communications.

THE TYPHOID SPINE.*

By V. P. GIBNEY, A. M., M. D.,

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It is with some hesitation that I present this title for your consideration to-day. I regret that I am unable to assign a name to the condition of things which the following cases so well describe. I have often heard patients who had passed through typhoid fever say that they had never felt the same; that there was always a defect somewhere. Practitioners know very well that the sequelæ are legion, and my own attention has been drawn to a group of symptoms pertaining to the spinal column as sequel to this fever. On one or two occasions, when pressed for an anatomical diagnosis, I have used the term *perispondylitis*, meaning an acute inflammation of the periosteum and the fibrous structures which hold the spinal column together. My reason for the use of this term was the production of acute pain on the slightest movement, whether lateral or forward, and the ab-

sence of any marked febrile disturbance or neuralgia. The secretary, I discover, has put me down for spondylitis after typhoid fever. If I could be permitted to use this term in the rheumatic sense and not in the tuberculous sense, I should not object, but whenever one uses the term spondylitis the lesion is regarded as one of osseous tuberculosis; so that I prefer, for the present at least, to speak of the affection as a typhoid spine.

The occurrence of periostitis after typhoid fever in the long bones is not at all uncommon. Dr. Keen, of Philadelphia, in one of the Toner lectures in 1876, published in 1877, gave a full account of all the bone lesions after the continued fevers. He found 69 cases following continued fevers, of which 22 affected the head, 7 the trunk, 6 the upper extremities, 42 the lower. There were 41 cases of disease of the bone, of which number 37 followed typhoid fever. In 47 cases traced as to the date of occurrence, 10 were within two weeks, 27 from three to six weeks, and 10, months after the fever. Keen's explanation was that the earlier cases probably came from clot, and the later from enfeebled nutrition. He found that the periostitis arose spontaneously or as a result of slight injury. In all my own cases a slight injury seemed to be the exciting cause. Sir James Paget, in "St. Bartholomew's Hospital Reports for 1876," vol. xii, p. 2, says: "Periostitis most frequently is seen in the tibia." He has seen it near the femur, the ulna, and the parietal bone. He has found it always circumscribed, always occurs during convalescence, and never attended with delirium or fever or any severe constitutional disturbance. Aitken says that no man can be considered fit for military service for three or four months after an attack of severe typhoid fever.

The best description I have found of periostitis after typhoid is in "Diseases of the Bones," by Thomas Jones, F. R. C. S. Eng., etc., of Manchester, published in 1887. The explanation of periostitis is now generally considered to be a cachexia which a specific fever constitutes, and a traumatism is regarded as an exciting cause.

CASE I.—In the fall of 1882 Dr. Beverley Robinson asked me to see with him a case of a lad fifteen years of age who was convalescing from typhoid fever. Toward the end of his convalescence he had begun to complain of severe pain in his back. The lumbar spine seemed to be the portion most affected, and the suffering both night and day, especially after any movement of the body, was such that narcotics were generously employed. We found no real deformity, yet there appeared to be a fullness in this region, which, upon closer examination, disappeared. There was a moderate degree of tenderness on pressure, and very great tenderness on any lateral or forward motion. There was no special pain in the distribution of the sciatic or anterior crural nerves, no infiltration in either ilio-costal space, no psoas contraction, and no rise of temperature. I had not encountered such a case before this, and was at a loss to give an explanation, or even a prognosis. I felt it my duty to protect the spinal column, and applied an apparatus as soon as possible. This seemed to afford relief, and in the course of two or three weeks he was practically well. I did not try to omit the brace, however. This he wore for about a year. I had an opportunity of observing the case from time to time, and find on my records that on June 28, 1884, I discharged him cured. The following note was made: "There is nothing now in the way of a deformity save

* Read before the American Orthopædic Association at its third annual meeting.

a little deepening of the right ilio-costal space. The spinal column seems free from any deformity, either lateral or antero-posterior; no tenderness on concussion, none on movement. At times, on making a misstep, he feels a little muscular soreness in the lumbar region." I examined him in October, 1884, October, 1885, and June, 1886, always with negative results, and found him quite able to play lawn tennis or exercise to any extent. In other words, the cure was perfect, and the diagnosis never made.

I was reminded forcibly of this case in the spring of 1888, when Dr. William M. Polk asked me to see a young lady, eighteen years of age, who was convalescing from a typho-malarial fever. The same acute pain that I found in this case reminded me forcibly of the case I have just reported. In this instance, however, it was the hip that was affected. I do not remember ever to have seen such acute suffering in an adult hip. The date of my first observation was on the 22d of April, 1888. The limb lay parallel with its fellow, and I could not execute any movement without exciting loud shrieks. She was not of an hysterical temperament—that is, had never been considered so; was rather lymphatic in temperament. The limb was not wasted, but the reflex spasm was very great. Weight and pulley and a traction hip-splint succeeded in affording relief in less than a month, and by the 7th of July she was in a fair way to recover. She sailed for Europe on this date, and in October of the same year, on her return, there was no lameness, no pain, no reflex spasm. There was some limit to the free range of motion as compared with the other limb. This case, although not a spinal one, is presented as illustrative of the supposed pathology—namely, a circumarticular lesion, confined to the periosteum and ligaments.

CASE II.—On the 26th of December, 1888, I saw, in consultation with Dr. Partridge and Dr. Draper, of New York, a young man, twenty-four years of age, well developed, and always healthy and robust up to September, 1888. He had contracted typhoid fever during that month at a sea-side resort, and the disease pursued a typical course. Early in November, while convalescing, he went to Boston, feeling a little uneasiness after his trip. He complained of pain in his back, which continued for eight or nine days, not severe enough to confine him to bed or to prevent him from playing tennis, which game, in fact, gave him some relief. He then had a week's immunity from pain. An exacerbation came on after a fall while at tennis. The pain next day was very severe, and it was with much difficulty he was transferred from Boston to his home in New York. This was in the latter part of November. On his arrival in the city Dr. Draper was called, and, after one or two thorough examinations, could not discover any evidence of Pott's-disease. After each examination, however, he would suffer excruciatingly, and large doses of morphine were required to give any relief. The exacerbations became more frequent, and an examination was not necessary to produce them. The recumbent posture was the only one that gave him any relief, and, on my examination, I found no fullness in either iliac fossa, nothing abnormal in the rectum, nothing in either ilio-costal space, no deformity of spine, no hard or soft tumor over the sacrum or over the ilium, no referred pain on pressure over the sciatic nerves. The hip-joint functions were perfect; no tenderness or pain at the sacro iliac junction (the test was made by direct pressure and by crowding the ala of the pelvis together). There was no spinal tenderness on pressure; but on deep press-

ure over the iliac region, especially on the left side, there was decided pain. Lateral and antero-posterior motion of the spine (passive) caused exquisite pain. He moved from the dorsal to the prone decubitus with the greatest care, fearing an exacerbation of pain. The temperature was 103° F., and had ranged from 101° to 103°; pulse, 120.

The result of our consultation was that he had no Pott's disease, no sacro-iliac disease, no neuritis. The question of a deep abscess was discussed, but abscess was not diagnosticated. A diagnosis of a perispondylitis, meaning either a periostitis or a subacute inflammation involving the fascia about the spinal column, was made. I believe now that he had a periostitis.

The treatment employed was with morphine to control pain, the dorsal decubitus, and the Paquelin cautery. From this time until the beginning of February he gradually improved. His exacerbations became less frequent and less severe. Toward the latter part of January he was able to sit up and even stand, but he was obliged to exercise the greatest care in moving about. I attempted early in January to fit a brace, but he was so comfortable in bed that I gave up the idea of mechanical support and decided to rely on expectant treatment purely. I made a note on March 20th that he was getting about and was nearly well. Since that a report has come to me that he has entirely recovered, has resumed business again, and does not show either deformity or awkwardness in gait.

The course pursued by this case was not at all unlike that of a periostitis, and when we consider the anatomy of the lumbar spine, the areas in this locality that are necessarily rendered sensitive by any inflammatory process, it is not at all an improbable diagnosis.

CASE III.—On the 13th of April, 1889, Dr. Alfred L. Loomis asked me to see with him a gentleman from London, eighteen years of age, who had but recently come from the northern part of New York State in a very helpless condition. The history was that in November, 1888, he came down with typhoid fever, was confined to his bed for several weeks with no complications, and on December 27th had sufficiently recovered to make a trip to New York. This was from Schenectady. He was then apparently well, remained in the city ten days, and returned in good condition. On January 10th, while skating, he fell and struck his left hip rather sharply. He did not apparently mind the blow, and a week or ten days later came to New York again, remaining here one week, during which time, while in the theatre one evening, experienced for the first time a pretty sharp pain in the region of his lumbar spine, and was quite stiff on getting up from the chair. He saw a physician the next day, who pronounced it lumbago, and a static electrical shock gave relief. He returned to Schenectady a day or two later, and was treated for lumbago with plasters, etc. The stiffness grew more pronounced, and his pains increased in severity. He found it difficult to assume an erect position without great pain. By the 10th of February he went to bed again, and there he remained until seen by a surgeon in Albany two or three weeks later. He regarded the case as one of *psaos* abscess. This is the report the patient brought to the city with him from his local physician. Neither Dr. Loomis nor myself could find any evidence of *psaos* abscess, but we found the patient difficult to examine by reason of the pain caused in moving in bed or sitting up. There was no rise of temperature; pulse, about 78; respirations normal. The spinous processes in the lumbar region appeared to be a little prominent, and were tender on pressure. There was no reflex spasm at hip or knee joint, and the movements, if made carefully, could be executed quite easily. He had lost flesh, but his appetite now was good,

and he suffered only from his disability. We decided upon a diagnosis of perispondylitis or, more properly, periostitis by exclusion.

The case was left in my hands, and I employed the Paquelin cautery for a week or ten days, three times a week. At the end of this time I applied a Knight spinal brace, and by the 9th of May he sailed for England, having walked about and traveled on street cars for a week prior to sailing.

In talking with Dr. Loomis at the time of the consultation, he gave me the impression that he had seen very few cases like this as a sequel to typhoid fever. As pertinent to this question I should like to present photographs of a patient, a mere lad, who came to me at the hospital about a year ago, from a town in New Jersey, with a history of these contractions following the wake of typhoid fever. His case was briefly this:

A boy, aged thirteen, admitted to the hospital 25th of June, 1888, with this history: Between four and five months ago patient had typhoid fever. Prior to that time was perfectly healthy. While confined to his bed kept both limbs flexed on abdomen, and during convalescence was unable to straighten them. On examination, he was found to be poorly nourished, quite unable to walk, unable to sit except in the position shown in the photograph—that is, thighs sharply flexed on pelvis, legs on thighs, heels touching buttocks. In dorsal decubitus any attempt at motion of the right thigh caused reflex spasm. The greatest possible extension was 70° for the right side, 135° for the left side. The greatest possible extension for the leg was, right side 60° , left side 100° . All motions at the right hip were



FIG. 1.—Best possible posture on admission into the hospital.

limited. There were several cicatrices of old bed sores over the sacrum and ilia. On July 10th he was etherized and both thighs and legs were forcibly extended, all resisting tissues being divided by the fascia knife. The limbs were very nearly straightened at the first sitting, and put up in plaster of Paris. The subsequent treatment consisted in still further overcoming the deformity by gradual means. Finally a hip splint was applied to the right limb, and at the date of his discharge, August 1st, the functions at the left hip were perfect; those at the right

were limited about one half. All disease seemed to be arrested, and the patient was regarded as cured. He left wearing the splint, and is to report a few months later.

Such, in brief, is an account of the cases here presented, and a pretty careful search of text-books has failed to reveal any cases of like nature. The reference in some journal articles to periostitis involving the trunk is so vague that I do not care to place them on record. Possibly many cases of obscure spinal injury after typhoid fever have been observed, yet in my own city, at least, I am sure they are uncommon. I wish it distinctly understood that I have not made a thorough search of literature, and make no claim to originality. My desire is simply to place these cases

on record, and to call the attention not only of orthopædic surgeons but of physicians in general to a very painful affection of the spinal column following typhoid fever, and to show by my own cases that a grave prognosis need not be given.

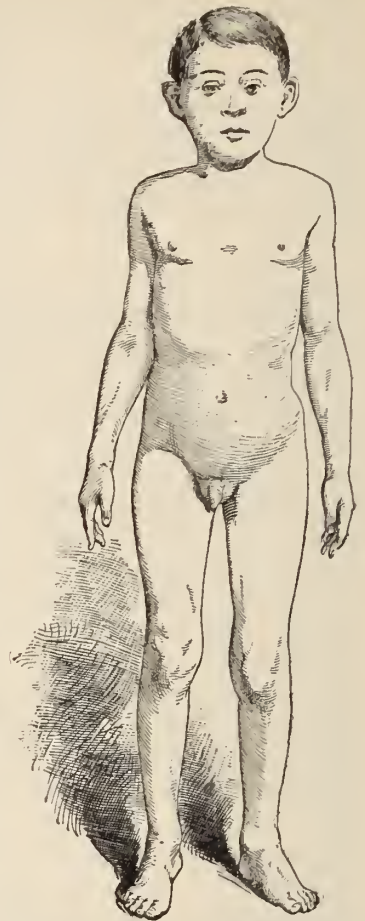


FIG. 2.—Best posture on date of discharge.

ON ELECTRO-DIAGNOSIS.

By A. D. ROCKWELL, M. D.,

PROFESSOR OF ELECTRO-THERAPEUTICS AT THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

INJURY to a motor nerve is followed by certain anatomical changes associated with altered function, as well as altered electrical reactions. There is always a very definite correspondence between the two, and in the ability to determine from the electrical conditions the histological state of nerve and muscle consists in the main the art of electro-diagnosis.

When a motor nerve is divided, the muscles which it supplies are immediately paralyzed, and, no longer being in connection with their nutritive center, the spinal cord, both nerve and muscle undergo pathological changes.

Accompanying these changes are marked deviations from the normal electrical reaction of both nerve and muscle. *Immediately* after the section of a nerve there is often a temporary increase of electrical response to both currents when applied to the nerve or the motor point of the muscle.

Subsequently, however, there is a steady decrease in the readiness with which electrical reactions take place, until

finally the excitability to both currents is completely abolished. These, it should be observed, are termed *quantitative* changes. If the applications are made directly to the muscle and not to the nerve, we find quite a different set of phenomena.

The faradaic current applied thus acts very much as when it is applied to the nerve; not so the galvanic. When the latter is applied directly to the muscle there is observed an immediate diminution in the readiness of response, but in a comparatively short time an increase of the electric excitability is developed. This is a sure indication that we have yet healthy muscular fiber, but fiber deprived of its nerve influence.

Soon, however, the muscular fiber itself begins to degenerate, and the galvanic current, instead of being followed by an increased readiness of response, acts upon the muscle less and less effectually, and finally, if regeneration in the nerve structure does not take place, the galvanic irritability to muscle becomes extinct. Accompanying this decreasing readiness of response are other changes in the character of the contractions termed *qualitative*, or, as they have been termed by Erb, the reactions of degeneration. If regeneration of the nerve and muscle should occur, galvanic reaction is also re-established, but fails to reach its normal standard for a long time.

I have seen a number of cases where the response of muscle to galvanism remained below the normal standard long after the complete return of voluntary movements and perfect response of nerve to faradism. A case of facial paralysis that I have recently had illustrates many of the foregoing points:

The patient first came under my observation some six months ago, about a week subsequent to the attack, when I found marked diminution of response to both currents. The paralysis, I may say, came on quite suddenly, following a debauch. On the tenth day or thereabouts there began to be a progressive increase of response to the galvanic current, but no abnormal reactions indicating degeneration of muscular fiber. These phenomena, however, began to appear at a later period, associated with a gradual decrease of galvanic response, and now neither current, when applied to the nerve, produces the slightest effect, while galvanism directly to the muscle causes only feeble and delayed reactions, with currents as strong as can be borne by the patient.

This case illustrates in a very interesting manner the progressive anatomical changes that take place in an injured nerve and the relation these bear to electrical phenomena. The diminished reactions to both currents first observed when applied to the nerve indicated that the nerve tissue itself was structurally altered, but did not necessarily indicate muscular degeneration.

There occurred, on the contrary, increase of response to galvanism applied directly to the muscle, indicating that the muscular fibers were still healthy. This increase of reaction is said to be due to the deprivation of the inhibitory action of the paralyzed nerve as well as the altered nutrition of the muscle itself. The reactions of degeneration which finally appeared and still exist, together with the quantitative changes or decrease of response to both cur-

rents, indicate degeneration of the muscular fiber itself, which may go on to a complete extinction of the electrical reactions, which indicates complete destruction of the muscle.

As in the study of auscultation it is necessary to understand the normal action of the heart, so in the study of electro-diagnosis it is necessary to understand the order in which contractions occur in the healthy nerve and muscle when subjected to the "make and break" of the galvanic current.

Bearing in mind that in health the closing contraction is always more vigorous than the opening, whichever pole is used, and that the cathode or negative pole acts more vigorously than the anode or positive pole, it is readily appreciated that there can be but four orders of contractions elicited in health, in the following order:

1. The cathodal closure contraction, indicated by the formula CCC.
2. The anodal closure contraction, ACC.
3. The anodal opening contraction, AOC.
4. The cathodal opening contraction, COC.

When, therefore, we speak of qualitative changes occurring in the electrical response, we mean simply that this order is changed, the ACC being greater than the CCC, or the COC exceeding the AOC. These changes are also referred to as the "reactions of degeneration," and invariably indicate structural disease of muscular as well as of nerve tissue, while quantitative changes indicate degeneration of nerve tissue only. This is an important point, which it is well here to emphasize, for I find there exists a very general misapprehension in regard to it. Qualitative changes in the electrical reactions are generally if not always associated with marked quantitative changes, while quantitative are often entirely independent of qualitative alterations.

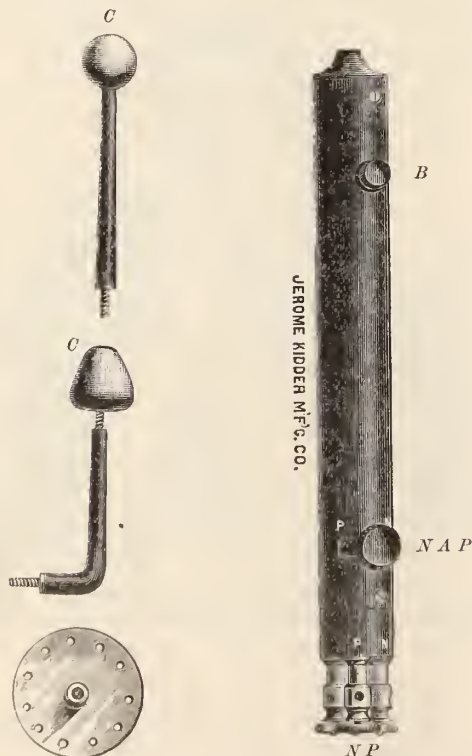
The one (quantitative) indicates more especially disease of nerve structure; the other (qualitative) suggests degeneration of muscular tissue. Such diseases as progressive muscular atrophy, pseudo-hypertrophic muscular paralysis, amyotrophic lateral sclerosis, and bulbar paralysis excellently illustrate degeneration of muscle with healthy nerve. In progressive muscular atrophy, for example, the electrical reactions demonstrate a healthy nerve, but a degenerated muscle. Either current applied to the nerve calls forth normal contractions. The faradaic current, applied directly to the muscle, calls forth contractions according to the amount of healthy fiber remaining. The fact that it produces contractions at all demonstrates the integrity of the nerve fiber, while the qualitative changes that are elicited on the application of the galvanic current to the muscle indicate the extent of the muscular degeneration. Similar phenomena are observed in the other diseases that have been mentioned in connection with progressive muscular atrophy.

The diseases, on the other hand, that show healthy muscle, but diseased nerve tissue, are confined altogether to those of central origin. These are paralysis from cerebral disease, and, with few exceptions, all those forms of spinal paralysis in which the gray matter of the spinal cord is not involved. Therefore locomotor ataxia, the various forms of multiple sclerosis without trophic changes, and spastic paralysis are seldom if ever associated with qualitative changes.

Quantitative changes are not infrequently observed in these spinal diseases, as well as in disease from cerebral lesion, but their causation is found in a general excitability due to an irritative lesion, to an absence of inhibitory action, or atrophy of muscle through disease, and not to actual degeneration.

In some nerve-trunk diseases, and also in acute affections of the gray matter of the cord, neither current applied to the nerve calls forth reactions. Faradism to muscle gives no response, but galvanism to muscle is followed by normal or increased response. This indicates that both the nerve trunk and its nerve filaments are diseased, but that the muscle itself is healthy. These phenomena are, of course, observed only in the very earliest stages of the diseases mentioned, and, in the nature of things, must, as a rule, escape observation.

Poliomyelitis anterior, on the contrary, whether occurring in the adult, or in childhood under the name of infantile paralysis, and lead palsy, uniformly yield those quantitative and qualitative changes that indicate degeneration of both nerve and muscle. There are, again, still other forms of paralysis from spinal disease where the character of the reactions varies widely, according to the seat of the lesion. In myelitis, for example, the electrical reactions may be absolutely normal, indicating that the disease is probably confined to the antero-lateral or posterior columns, while in other and the majority of cases there are quantitative and qualitative changes that clearly point to disease of the gray matter of the cord.



to the muscle directly calls forth reactions even more vigorous than normal. It is perfectly plain that this phenomenon means a diseased nerve trunk, but a healthy muscle, with healthy intramuscular nerve branches. As these reactions have been observed only in the very earliest stages of a traumatic injury to a nerve and in rheumatic neuritis, they would necessarily, in most cases, escape notice.

The electrode here presented (in two parts) is one that I have used with much satisfaction in eliciting the various abnormal reactions that are associated with the many forms of paralysis. It will be observed that there are three binding posts at the lower extremity. The one marked *P* is to be connected with the positive pole of the apparatus; the other, marked *N*, with the negative. The third post is to be connected with an electrode applied to some indifferent part of the patient's body. The small knob marked *A*, when moved toward *P*, renders the electrode *C* positive; when moved toward *N*, the tip becomes negative. *B* is an interrupting button, which when pressed closes the circuit, and by sliding it slightly forward the circuit can be kept closed, when so desired, without effort of the operator. This form of electrode is exceedingly convenient in electro-diagnosis, from the fact that, by a simple movement of the finger of the hand that holds the electrode, the knob *A* is moved, the direction of the current instantly changed, and anodal or cathodal contraction elicited in quick succession.

STERILIZED MILK.

By WILLIAM B. WOOD, M. D.

THE numerous recent experiments with sterilized milk have revolutionized the system of infant dietary. Successive improvements in apparatus and methods indicate an intense and widespread interest in Soxhlet's discovery, and reveal how great was the felt need of some reliable food for children that should approach nearer to nature's nourishment than any of the complicated concoctions known as infants' foods. In the light of these experiments the old maxims—that mother's milk was the best and only safe nourishment for infants, and cow's milk the worst and only really dangerous substitute—must undergo material modification to conform to present facts; for while good mother's milk is always the best food for a baby, it is no longer the only safe nourishment, and if it is inferior in quality or deficient in quantity—as is the milk of the majority of city-bred mothers—it is not even the best food.

Cow's milk, on the other hand, although it has justly earned the reputation of collecting and at untimely moments letting loose more evils than issued from Pandora's box, is yet, when it is pressed from the udder, as thoroughly aseptic, and hence quite as innocuous, as breast milk. It absorbs impurities only upon exposure, but absorbs them so promptly and rapidly that ten minutes in foul air or unclean receptacles may render milk poisonous; and, even under the most favorable circumstances, it can not be kept entirely free from germs, more or less noxious.

By the simple process of sterilization, however, milk

An interesting deviation from the ordinary reactions found in diseased nerve and muscle, but one not very frequently met with, I imagine, is where both currents applied to the nerve, or the motor point of the muscle, fail to produce any contraction whatever, while either current applied

may be robbed of all dangerous elements, and then become the very best substitute for mother's milk.

Sterilized milk insures the infants against the calamities that follow in the train of impure food; it eliminates milk poison, the enteric diseases caused by fermentative germs—colic, diarrhœa, and dysentery—and, from the milk at least, the child can not longer absorb germs of whooping-cough, scarlet fever, measles, diphtheria, or tuberculosis. But there are other defects of bottle-feeding that simple sterilization does not touch; a child may be free from acute disease, and yet die of starvation, or fall a prey to the various chronic diseases resulting from malnutrition. An infant may be fed to repletion, and yet be but poorly nourished. Scores of even breast-fed babies are half starved, without ever really suffering from hunger; and the majority of bottle and patent-food infants show signs of malnutrition up to the time they are given a mixed diet—if, indeed, they live so long.

Therefore, while the sterilization of milk robs bottle feeding of its most imminent danger, it is, in infants' feeding, by no means the only requisite to sound health and a vigorous development. Sterilized milk possesses the important negative virtue of being absolutely innocuous, but it too often lacks the necessary positive quality of adequate richness. It is well known to the profession that ordinary cow's milk does not furnish a sufficient proportion of fat properly to nourish an infant; but this knowledge is not, unfortunately, shared by the majority of mothers.

Nurse and mother almost universally consider a baby well fed if its hunger is periodically appeased and its body moderately plump. The ominous signs of malnutrition indicated by late dentition; poor bone formation, tending to rickets; broken sleep at night; general fretfulness by day; a susceptibility to colds, and a tendency to "catch" diseases as the consequence of lowered vitality—these escape the analysis that runs to ultimate causes until the baby is acutely ill, and thus come under the eye of the family physician.

Good breast milk is the ideal by which we should judge our substitutes, and it contains a larger percentage of fat than the milk of any cow, save the pure Jersey, which yields twenty per cent. or more of cream. Milk from tested Jersey cows, diluted for very young children with the due proportion of boiled water, to which has been added a small quantity of sugar and salt, is so nearly like breast milk that the digestive organs themselves can not tell the difference.

It is a great gain if the milk to be used by children, invalids, or travelers can be sterilized in the country as soon as it comes from the cow, and then be transported to town in the sterilizing bottles. As each bottle should contain only enough for one meal, the milk remains sealed until just before it is used, and so is exposed to no possible source of contamination. Where milk can not be sterilized when it is fresh, it may be prepared each morning in the nursery as soon as the day's supply is received.

If the milk is not of a grade to yield at least twenty per cent. of cream, cream should be added to it in the proportion of one ounce to three of milk. This method of enrich-

ing thin milk, which is recommended by the leading authorities in infant dietary, provides, it is true, the necessary fats, but at the expense of freshness, since the milk must stand several hours after delivery to accumulate the needed cream.

A convenient apparatus for the domestic sterilization of milk has, upon my suggestion, been manufactured by Fraser & Co., after designs in which I have aimed to lessen the possible number of flaws in the method. Carelessness and stupidity on the part of those who sterilize milk in the household often render the whole process useless. The milk, which should keep fresh at least thirty days, thus turns sour within forty-eight hours. An apparatus, therefore, which simplifies the work and diminishes the chance for mistakes is its own *raison d'être*.

Fig. 1 shows the new sterilizing bottle. It was designed so that it could easily be cleaned, having no corners or curves that would retain particles of sour milk to contami-

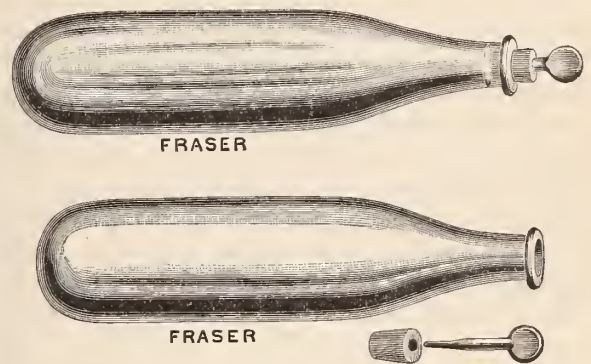


FIG. 1.

nate the next supply. The corks (rubber and glass) have been adapted from others' designs, as they have already proved all that could be desired.

Fig. 2 shows the bottles filled, corked, and placed in the rack, which is to be lowered into the tin pan where they are sterilized. This rack will also conveniently serve to

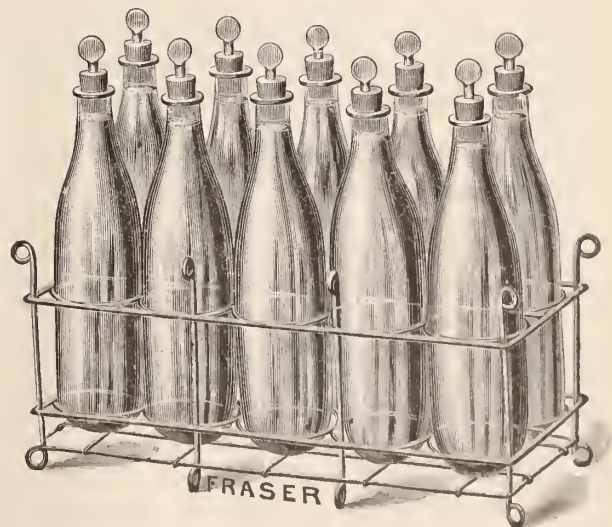


FIG. 2.

hold the bottles of milk in the ice-chest at home, or in the lunch-basket when traveling. It is light in weight, and

economizes room to the last possible degree. The small single rack (Fig. 3) is used to hold a bottle that is warmed for an infant. The bottle and rack are put into a small tin cup of warm water and placed over an alcohol lamp. The apparatus is completed by a square covered tin pan that will just fit outside the rack and bottles. For traveling, a wicker basket of a size to hold one or more dozen bottles is designed to be used.



Fig. 3.

The process of sterilizing milk is now so well known that only the briefest review of the method to be used with this apparatus will be necessary.

The bottles are filled with milk to within an inch of the top, the rubber perforated corks are inserted, the bottles placed in the wire rack, and this lowered into the tin dish. Cold water is then poured in around the bottles to within two inches of their mouths. The tin cover having been put on, the temperature of the water is gradually raised until it boils ten minutes. The glass stoppers are then inserted, and the boiling continued for twenty minutes longer. The rack containing the bottles of milk, now sterilized, is lifted out and put away where the bottles may cool gradually. If the changes of temperature are sudden, the glass becomes brittle, and numbers of the bottles are broken. If milk so prepared will not keep from one to three months, there is almost certainly some lack of cleanliness in the apparatus used.

It would seem that as yet sufficient emphasis is not laid upon the necessity of sterilizing all milk used for children and invalids. One well-known writer says: "When milk can not be obtained fresh it is well to sterilize it before using"; another that "in warm weather it is a wise precaution," and a third that, "in case of bowel or stomach trouble, sterilized milk is safer." But it is in this, as in other lines of medical research, the ounce of prevention that is the thing to be desired. Professional men who, a generation since, would have absorbed themselves in the study of disease and its remedies, now more earnestly seek to understand the necessary conditions of health and its preservation.

When all milk which is given to a child is scientifically sterilized it does not suffer from bowel trouble, nor from "sour" stomach, and it forms no indigestible curds, since cow's milk, after it is sterilized, curds in small soft flakes as mother's milk does. An infant with ordinary good heredity, who is thus fed with creamy sterilized milk, will go through with teething and suffer no disturbance or inconvenience greater than the teasing irritation of tender gums.

During the past summer several children who were losing flesh on poor breast milk were, by my advice, given instead rich Jersey milk thoroughly sterilized. In every case there was immediate and continued gain both in weight and strength. In one case the baby gained, from the second to the sixth month, a pound every ten days as regularly as clock-work, and had not a single hour's illness of any kind. At the end of that time the nurse, tired of the "fuss," failed

to sterilize the milk. The disturbance of the child's digestive system which resulted caused a loss of three pounds' weight in one week—it being that length of time before the intestinal canal could be cleared of the microbes introduced in one day's supply of unsterilized milk.

Since our scientific men have now so convincingly demonstrated that milk can not, even in the country, remain many minutes free from germs, it certainly never should be given to a baby thus contaminated.

POISONING FROM GASOLINE.

BY J. G. BILLER, M. D.,
CORRECTIONVILLE, IOWA.

WHEN we consider the common use of the products of petroleum, it is surprising that medical literature should be so silent about them. In fact, from the silence of our literature upon the subject and from long familiarity with them, we were of the opinion that they were not at all dangerous; but a couple of cases in which children had been drinking kerosene came under our notice and the alarming symptoms, such as depression, etc., were probably as much of a surprise to us as to the friends and neighbors.

A thorough search through the literature at hand revealed but little upon the poisonous effects of kerosene, and nothing at all about gasoline except a meager account in the National Dispensary. In August, 1888, we suddenly received more information than was pleasant upon the subject of gasoline poisoning, as the following case will show:

CASE I.—A baby, eighteen months old, was left alone in a room for a few moments, when it climbed up to a shelf where sat a pint measure one quarter full of gasoline. The child drank part and spilled the rest down the front of its dress, then set the cup down and went into the next room, where it was found by the mother lying unconscious on the floor. The mother had not been absent five minutes.

In ten minutes we saw the child and found it still unconscious, breathing or gasping about eight times a minute, pulse imperceptible at the wrist, the pulsation of the heart scarcely distinguishable, the eyes rolled back, and the face livid. The skin of the neck and chest was a bright red from the spilling of the oil, the jaws were firmly closed, the arms extended and rigid, and the legs limber. The abdomen was terribly distended and tympanitic, and the surface of the body was cold and clammy.

The child was put into a warm bath and an attempt made to give an emetic, but anything in the throat caused strangulation. After being in the warm bath a few minutes the child revived, and its breathing became more natural; the rigidity of the muscles relaxed, and it spoke and seemed to recognize its parents. Its pulse was still imperceptible, and, after remaining in this condition about two minutes, it suddenly dropped over, gasped a few times, and was dead.

The rapidity with which death came was astonishing, as the child did not live more than thirty minutes after drinking the oil. While in the warm bath its bowels moved very copiously. There was little time to think of treatment while the child was alive, but stimulants were what appeared to be required, and that hypodermically, but my syringe was away to be repaired, and there was no time to

send for another. The result might have been better with different treatment, but the lack of a hypodermic syringe and a stomach pump, or any other means of washing out the stomach, threw us entirely back upon external measures. Then, as before stated, we were entirely unprepared for such a case, never having seen or heard of one at that time. In the cases of kerosene drinking already mentioned the symptoms were somewhat similar, but not nearly so serious, and the stimulants could be given by the stomach.

CASE II.—November 1, 1889, child, nineteen months old. The mother had filled a small oil-can with gasoline and set it into a closet, closing the door, and turned away to attend to something else, when she heard the door open. Turning around, she saw the child raise the can to his mouth, and screamed at him, causing him to drop the can, but not before some of the gasoline had been swallowed.

We saw the child in less than three minutes. He lay almost comatose in his mother's arms. His breathing was slow and pulse imperceptible; the heart-beating was just perceptible and was so weak that at times it seemed to stop. His face was livid and cold, eyes rolled back, with pupils slightly dilated. The rest of the body was cold, with livid extremities. The mouth was filled with a sticky saliva that the child would occasionally force to the lips but not spit out, and the mouth and fauces were very red. Twenty drops fluid extract of ipecac were given by the mouth, and two drops fluid extract of digitalis and fifteen of brandy hypodermically. Nitrite of amyl was sent for at once. Allen's surgical pump was adjusted, the tube introduced into the stomach, and warm water pumped into it. The tube became stopped by undigested food when we attempted to draw the water back, so we continued to fill the stomach until the distended organ began to overflow, assisted by the continual retching caused by the irritation of the tube in the throat. Large amounts of water and food came up, all smelling strong of gasoline. This was kept up until the stomach had been thoroughly flooded. The amyl having now arrived, two drops were placed on a handkerchief and held to the child's nose. Soon the pulse began to flutter and grew quite strong. Every three or four minutes the child would drop into a half-stupid state and become pale and blue; then the amyl had to be repeated. In an hour and a half after taking the poison he had recovered enough to talk and notice things, and soon began to play with a watch, when he was pronounced out of danger.

In this case the depression came on with alarming rapidity, but, from my experience with the first case, I was at once prepared to act. The administering of an emetic is almost a waste of time, for the stomach generally fails to respond to an emetic in kerosene poisoning, and I do not think it would respond soon enough to be of any use in gasoline poisoning.

The nitrite of amyl undoubtedly was of great benefit, but still the child showed some signs of recovering before it was used.

Chlorate of Potassium.—“Dr. Coghill, in a paper read at the Ninth International Medical Congress, confirmed the results of Wöhler that chlorate of potassium is excreted in the urine unchanged and in the full amount ingested, and hence does not give off oxygen to the tissues. Nevertheless, besides its local uses, he finds it of value in preventing abortion, in all cases of pulmonary insufficiency, as phthisis, chronic pneumonia, and bronchitis, in anæmia, chlorosis, and general malnutrition. In addition it has an antiseptic action in diseases of the genito-urinary tract where there is suppurative or purulent or phosphatic urine.”—*British Medical Journal*.

STRANGULATED UMBILICAL HERNIA, WITH LOCALIZED GANGRENE.

RECOVERY.

By WILLIAM HALLOCK PARK, A. B., M. D.,
LATE HOUSE GYNECOLOGIST, ROOSEVELT HOSPITAL.

MARY G., aged thirty-nine, was admitted to the Roosevelt Hospital January 8, 1889, for a laceration of the cervix and perineum. She also gave the following history: In March, 1886, when four months pregnant, she noticed a small tumor at the umbilicus. This was allowed to remain unreduced. In October, 1888, the swelling became painful for the first time. The pain and tenderness increased and the patient soon was seized with severe vomiting. A physician was called, the hernia reduced, and a truss applied. Since that time the patient has worn the truss and has had no further trouble.

On admission, the patient is well nourished. The hernia is reduced and is not forced out by moderate coughing.

On the 9th of January the perineum and cervix were operated upon by Dr. George M. Tuttle.

On January 16th, after a hearty midday meal of corned beef and cabbage, the patient felt distress in the region of the umbilicus, and on examination found a tender swelling present, but did not call attention to it till four hours later, when she was seized with vomiting. On examining her at 7 P. M., I found a tense, tympanitic, and very tender swelling of the size of a child's fist. Attempts to reduce it were absolutely without effect. How long the hernia had been present before being noticed by the patient is uncertain, as no recent examination had been made. Opium was given and cold applied. At 10 P. M. the vomiting had become frequent. The local conditions remained the same.

Dr. Charles McBurney, who happened to be at the hospital, kindly looked at the case and advised immediate operation. Two hours were unavoidably lost in consulting with Dr. Tuttle and in getting the patient's consent. Owing to the sickness of Dr. Tuttle, I was forced to operate in his place. Dr. Brockway, the house surgeon, kindly assisted me.

The patient at this time was considerably prostrated; the vomiting had become almost constant, and the matter ejected was green and foul-smelling. The operation was begun at 12.30 A. M. with ether narcosis. A three-inch vertical incision was made over the tumor and carefully carried down to the sac, which, when free, proved to be pear-shaped, with its neck constricted by and adherent to a very tight ring. As a fold of the tense sac was pinched up between two forceps and divided, gas and cloudy serum escaped. Within were found rather more than four inches of darkly congested small intestines. At the part farthest removed from the constriction and nearly opposite to the insertion of the mesentery were two gangrenous spots, each half an inch in diameter and about a quarter of an inch apart. In one of these was a perforation from which cloudy, slightly smelling fluid escaped. The loop of intestine was carefully irrigated with warm 1-to-1,000 bichloride-of mercury solution, pinched up between the fingers, and the two gangrenous portions were removed by a single elliptical incision whose long diameter ran diagonal to the length of the bowel. The constriction at the neck of the sac was so tight that the contents of the intestines were absolutely prevented from passing through into the wound. The interior of the loop was thoroughly cleansed with hot water.

The edges of the opening were now carefully approximated by the fingers and united by three continuous sutures of No. 1 catgut. The first united, without tension, the divided surfaces of the mucous membrane. The second united the muscular layers. The third brought narrow surfaces of inverted marginal peri-

tonæum in close apposition—a Lembert suture, modified only in that it was passed continuously. The ring constricting the hernia was now divided on a director. The collapsed intestine expanded and the circulation quickly improved. There being no leakage at the site of the sutured wound, the intestinal loop was returned into the abdomen.

The remains of the sac external to the ring were then excised. Two silver-wire sutures were then passed through the entire thickness of the abdominal wall, including the peritonæum. The peritoneal edges were further united by three heavy catgut sutures. The silver wires were then fastened and the edges of skin carefully united by interrupted sutures of silk-worm gut. The wound was finally cleansed, dusted with iodoform, and covered with bichloride gauze. Time under ether, two hours. The patient passed the first twenty-four hours without any bad symptoms. At 5 p. m. the abdomen was soft, pulse 98, respiration 22, temperature 99° F.

On the afternoon of the second day the patient was given an ounce of beef-tea by the mouth; this was quickly vomited. The vomiting of greenish-colored fluid was repeated some seven or eight times during the next two days. The abdomen became very slightly distended, but the pulse, temperature, and respiration remained the same.

On the fourth day the patient was given a copious injection of warm boric-acid solution. This was followed by four fairly large faecal movements. The patient also retained small quantities of peptonized milk given by the mouth.

On the tenth day the sutures were removed from the wound, which had healed by primary union. Since the last note she has steadily improved. Bowels move once every day.

February 7th.—Patient is to-day sent to her home, apparently cured.

March 1st.—Patient's physician reports that she has just passed through a sickness giving the symptoms of acute intestinal obstruction. The vomiting and prostration were marked. The symptoms increased for some twelve hours, and then gradually abated.

June 1st.—Since March the patient has been well. To-day, on examination, I find no return of the hernia.

GRATIFICATION OF THE MIND AS A REMEDY FOR STERILITY.

By M. J. BURSTEIN, M. D.

Mrs. B., aged twenty-four, consulted me on October 20, 1888: "Doctor, I am married since three years and have no children. I have been doctoring myself for the past two years, and now I want you to tell me whether I am able to bear any, or I have to give it up for a good job. I am very anxious to have a baby. I have been going around from doctor to doctor with no result." Her history is as follows: She is a native of Russia; has been healthy since her childhood; began to menstruate at the age of fourteen, and was not troubled up to her marriage. At times she had some pains in her back before the flow started, but these pains were insignificant; menstruation lasted about five days, and the loss of blood has been moderate. Since her marriage, however, she feels a heaviness in the abdomen, sometimes pains in the back, pains and weakness in her limbs, dizziness, indigestion, suffers from chronic constipation, indisposed to be in company, no desire for sexual intercourse. She feels something wrong with her womb ("walking of the womb," as she called it). Has lost flesh and strength and become anæmic. She does very little work about the house, and

is constantly worrying about her incapability of bearing children. She stated that she would submit to any operation if it would remedy the defects of her body in regard to her being sterile. She had heard different stories from women about various methods of treatment, and, as it seemed to me, the pessary treatment ("ring inside," as she called it) was, in her opinion, the best one of all.

Placing the woman on my operating-table, I found that the uterus was of a normal size and color, no elongation of the cervix (a very slight anteversion, however); I could pass a sound through the cervical canal very easily; no pain on touch in the ovarian region, but a slight tenderness over the whole abdomen.

Giving her a tonic pill and directing her to take some vaginal injections, I assured her that she would become pregnant sooner or later. In about a week she called again, and insisted on being operated upon with this "ring." I promised her that I would do so as soon as she should get more strength to stand the operation (no other treatment was, according to her imagination, of any avail). She came once more and told me that she feared to wait any longer, and that she wanted to stop the "walking of the womb" at once. This was on the 11th of November, 1888. I showed her a "ring" by which I would stop "walking" immediately. I inserted a Hodge pessary, *which I immediately removed* (causing her a little pain), and when she got up I asked her how she felt. "Splendidly; why, I feel that it does not 'walk' any more; I feel much easier." I gave her instructions to give up treatment, but keep on taking good food and sufficient exercise; she was not to fear to walk, as the "ring" would hold everything in position. She left me on that day, and I had almost forgotten about her. On the 25th of July, 1889, the same little woman came in with a smile. "Well, doctor, I believe it is about time to remove the 'ring.' I am already in the family way since five months; I am tired wearing it; eight months is enough!" I examined the woman "to remove the ring," and found that she was right. She is now at full term and is as healthy as "she was always." Did not the satisfaction of her mind cure her?

182 HENRY STREET, NEW YORK, November, 1889.

THE SEPARATION OF THE POISON OF THE "LOCO-WEED."

By MARY GAGE DAY, M. D.,
WICHITA, KAN.

In making the separation by the following method, only the plants gathered in the fall were used.

The roots, stems, and leaves were boiled ten hours, strained, and the decoction concentrated to a syrup, poured, while hot, into a hot flask, corked, and set away. At the end of ten days the syrup had separated into two layers—the upper a blackish liquid, the lower a brownish sediment. The liquid was poured into a flask and covered with six times its volume of very dilute alcohol, 30 per cent. (the sediment also was washed with the dilute alcohol, to insure complete removal of the liquid), corked, and let stand three days; agitated occasionally; then filtered, and the filtrate *slowly* evaporated in the air, when crystals formed. It was found important not to hurry the evaporation, for when this took place too rapidly the crystals did not form.

These crystals are microscopic in size, blue-white in color, and of a variety of forms. The most characteristic are slender and pointed, arranged in rosettes or grouped in

various ways. They are soluble in distilled water and very dilute alcohol, very sparingly soluble in strong alcohol, not soluble in chloroform or ether.

The evaporated mass containing the crystals, when dissolved in distilled water, is slightly acid in reaction. A small amount of this fed to a kitten produced the train of characteristic toxic symptoms—sleepiness, loss of appetite, retching, and diarrhœa—that is produced by quite large amounts of the decoction.

I therefore conclude that the substance which separates in the crystalline form by the above-described method is the poison of the "loco-weed," but defer naming it until an ultimate analysis is made, which will be done during the year at the Hygienic Laboratory of the University of Michigan.

After a more extended study I hope to be able to enter more fully into the discussion of the chemistry and the physiological action of this poison.

A FATAL CASE OF CARBOLIC-ACID POISONING.

By S. T. RICHMAN, A. B., M. D.,
PRINCETON, KANSAS.

ON July 26, 1889, at the noon hour, a child seven months old received a superficial burn on the left arm and thigh from a cup of hot coffee. A mixture, consisting of equal parts of carbolic acid and sweet oil, was applied by the mother, being a recipe taken from a domestic medical book in her possession. About half an ounce of 95-per-cent. carbolic acid was thus used. In two hours the child passed into a condition of stupor, which, continuing, alarmed the family, and I was summoned.

Arriving at 7 p. m., I found the child lying quietly, with the exception of an occasional movement, made by flexing the legs upon the thighs and these upon the abdomen, and then forcibly extending them. The eyes were fixed, the pupils contracted to the size of a pin's head, the pulse 120, weak, breathing irregular, occasionally sighing, swallowing performed with great difficulty, mucus expectorated rather than vomited, the odor of carbolic acid being plainly perceptible in the breath.

Not having atropine with me, I administered four minims of the fluid extract of belladonna by the mouth, a portion of it being rejected. At the end of an hour the pupils had begun to dilate, a slight blush was barely perceptible, and swallowing less difficult. A small quantity of whisky was then given with two minims of belladonna.

At the end of another hour the pupils were normal, the erythematous blush quite perceptible, swallowing somewhat improved, pulse and respiration the same. Learning that no urine had been passed since noon, and not desiring to substitute belladonna for carbolic-acid poisoning, I discontinued the former and ordered small doses of nitrate of potassium and whisky to be given at intervals during the night.

At eight o'clock next morning the pulse was 160, weaker, temperature 103° F., face blanched, pupils larger than normal, eyes fixed, the child lying quietly. The mother showed me a napkin with a dense smoky stain, three of which had been removed during the night, adding that the stains would not wash out. The child continued to grow weaker, the pulse rising higher, until convulsions set in at five o'clock, and death occurred an hour later—thirty hours from the application of the acid.

No post-mortem was allowed.

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THE CONGRESS OF PSYCHOLOGICAL PHYSIOLOGY AND
HYPNOTISM.

INTERESTING things, according to the "Progrès médical," were discussed last summer by the learned body above mentioned. Among them, hypnotism received serious consideration. Whether the hypnotic sleep and normal sleep were identical in kind, and whether susceptibility to the hypnotic influence existed in greater degree among those deficient in nerve force or among those who possessed nerve force to the natural extent were some of the questions raised. M. Richet inclined to the opinion that persons without any neuropathic defect were hypnotizable, in spite of the prevailing idea that only the nervously weak could be overcome. Bernheim thought that with patience everybody could be put to sleep, and such was the theory of all the Nancy school. At the same time, he said, there must be a certain impressibility, which he hesitated to call a neuropathic impressibility, because it existed, he believed, in inverse ratio to nervous defect. Hypnotic sensibility existed at all ages. Oschorowicz confirmed the idea that nerve deficiency lessened hypnotic susceptibility, especially in neurasthenics. The question of nationality as a factor in susceptibility was raised. The conclusions arrived at were to the effect that the French were no more susceptible than those of other races; and that, generally speaking, all persons of every rank were hypnotizable, except certain peculiar individuals whom nobody could impress under any circumstances, and the victims of hysteria gravior. Richet raised a question concerning the personal influence of the experimenter, remarking that the old magnetizers had considered it highly important. Myers, of London, spoke from definite experiment to the effect that the will of the operator sometimes produced impressions upon the subject and sometimes did not. Richet suggested the following division of conditions characterized by change in the personality of the individual: 1. Spontaneous phenomena, either normal or pathological, such as sleep, somnambulism, etc. 2. Induced nervous states—such as those brought about by suggestion. 3. Actions at a distance, mental suggestion, and telepathy, phenomena not yet irrefutable and belonging to a science still so embryonic as to be outside the pale of discussion. Bernheim spoke of the two theories in regard to hypnotism—*suggestion*, which he himself maintains, and *fluidism*, of which idea Oschorowicz is the apostle and party representative. The theory of fluidism is to the effect that action is produced upon the organism without cerebral intervention. This may be possible, yet up to the present time it has not been proved. Passes, fixing the gaze upon brilliant objects, etc., are said not to belong to suggestion. Surely sug-

gestion plays a part. Fixing the eyes upon a brilliant point, an upward convergence, and raising the eyelids produce fatigue conducive to slumber, and bring about indirect suggestion.

The rôle and action of physical agents may thus be explained on the ground of indirect suggestion. Liebeault's experiments on infants would seem to refute this idea. He cared for sick babies suffering from various digestive disorders, whom he cured by simple laying on of hands. In such little children is suggestion possible? Why not? The journey, the visit, make an impression to which the infant responds. Babies are *suggestible* when a month old, possibly when a day old. Ballet felt himself astray among such distinctions. Up to the present time he had supposed that there could be no suggestion without definite prevision on the part of the experimenter. After some little skirmishing, Richet remarked that words certainly played some part in the discussion. Under the influence of external objects there was always mental reaction. Now, if this was called suggestion, then everything was suggestion. But suggestion in its hypnotic sense meant only an indication of the experimenter's thought or of the thought of the subject. Important as this may be, it is by no means everything. Dalinewsky, of Karkoff, said that hypnotism in general presented an assemblage of psycho-physiological phenomena common to man and animals. To find out the laws of its action, to reach any complete analysis, a careful study of the hypnotic state in animals was essential, their psychic organization being far simpler than man's. He himself had induced the hypnotic state in the crawfish, the crab, the shrimp, the lobster, the cuttlefish, the electric eel, the brill, the leech, the frog, the tadpole, the triton, the lizard, the crocodile, the serpent, the tortoise, and certain birds. The general picture of the hypnotic state among animals was this: The animal was placed in some abnormal posture. A slight but prolonged effort on the part of the experimenter overcame its resistance, and voluntary movements were paralyzed; the animal was now quiescent. Marked anaesthesia of the skin and mucous surfaces was then developed. Inward excitement, such as that induced by artificial obstruction of the respiratory tract, no longer provoked voluntary movements. Convulsive movements now began, giving to the phenomena present the characteristics of a violent psychical emotion. Repetitions of the hypnotic state diminished the animal's resistance. It became more and more susceptible to the hypnotic influence. Verbal suggestion in man and sense-suggestion, executed in animals by the hands of the hypnotizer, were homologous. Here we were dealing with psychical acts that were unconscious and instinctive.

OCULAR DEFECTS AND THE NEUROSES.

The Commission on the Treatment of Epilepsy and Chorea by the Correction of Ocular Defects presented its report to the Neurological Society on November 5th, as we have already announced. The terms of the original agreement made between the Commission and Dr. Stevens, the changes in the original plan, the difficulties encountered by the Commission, together

with a summary of cases, were set forth in due form. Dr. Stevens replied with some spirit, and endeavored to explain certain ambiguities with the same freedom of speech that had characterized criticisms of himself and his methods. The evening was unique in the annals of neurological science, and those who were absent missed much that printed accounts are powerless to convey. An obstreperous chorus chimed in now and then, like the bassi profondi and the tenori robusti of the opera who had forgotten their parts and gave forth notes at the wrong moment. Some fair-minded members, who believed in aiming straight at the target and hitting the bull's-eye every time, suggested that the speaker should not be interrupted, as the reader of the report had been listened to in silence. A good deal of the discussion was controversial and personal, recalling in a measure the "Society upon the Stanislaus" as described by "Truthful James." When all was told—and it took some hours to tell it—the fact remained that six patients out of fourteen had been improved by ocular tenotomy, though none of them had been cured. Now, what does this prove, and does it prove anything? It would seem to prove that Dr. Stevens's method is a therapeutic measure valuable as an adjunct, and that, in certain cases where toxic medication is unwise, it constitutes one more means of alleviating suffering. This fact remains, according to the report of the Commission, and in spite of the frank fencing-match in which adjectives were the weapons used. "Wisdom suggests leaving words for facts, since facts form a more rational basis for theories." Hypnotism is, in a certain sense, a new remedy. It does relieve, though it may not cure. Though its future is difficult to prophesy, shall it be abandoned and ignored? Ocular tenotomy has relieved in certain given cases, but cured in none of them. Is it an utterly despicable method of procedure, without a leg to stand on? Let the fair-minded physician investigate the matter for himself, remembering that science and preconceived opinions are incompatible. Tenets are fixed, while science is progressive. According to Erichsen, in his address at King's College, the real object of medical education is to train the mind to remain open to the reception of truth throughout life, and to meet the varying emergencies of a professional career. The mind ever open to truth is the fair mind, and the verdict of the fair mind is the only one worth having.

MINOR PARAGRAPHS.

THE MEDICAL ASPECTS OF THE WANDERING JEW.

EUGENE SUE was a medical man, well trained in the science of his time. According to the "Lancet," he was a surgeon to the royal household, and served also in the army and navy. He was the fourth in direct descent that had been educated in the medical art. His father and grandfather were both graduates of Edinburgh. His father translated into French the principal treatises of the Scottish school. He made some original investigations concerning galvanism and the guillotine, and he served as chief of the medical staff of the Imperial Guard during the campaign into Russia and subsequently became physician to Louis XVIII. On his death he endowed the Academy of Fine Arts with a museum of natural history and comparative anat-

my brought together by four generations of physicians in his family. The great-grandfather of Eugene was one of the prominent physicians of the early part of the eighteenth century. The author of the "Wandering Jew" brings his fine medical training into requisition in those passages that depict the cholera visitation of 1832 and its manifold effects upon the citizens of Paris. Sue inherited a fortune when about twenty-five years of age, and immediately left the naval service to put into exercise his predilection for imaginative composition.

GARROD'S SULPHUR LOZENGE.

IN our issue of July 13th reference was made to Sir A. B. Garrod's paper, in the "Lancet," on the usefulness of small doses of sulphur. At that time, so far as we could learn, no "compound sulphur lozenge," such as Dr. Garrod had used, had been in the market in this country. Since that time two drug-houses have announced the preparation of a Garrod's lozenge. One of these closely follows the English physician's formula, which orders five grains of sulphur and one grain of cream of tartar in each compressed lozenge. This is the product of a Baltimore house of high repute. Another large firm, doing business in Philadelphia, has made a similar preparation, but the formula is varied so as to add to the two ingredients named three others, as follows: extract of ipecac, one one hundredth of a grain; extract of capsicum, one five-hundredth of a grain; and arsenious acid, one one-thousandth of a grain, in each lozenge.

SYPHILIS AND THE SPEAKING-TUBE.

THE Paris correspondent of the "American Practitioner" gives an account of a case of syphilis of the mouth with a history of unusual origin. It is from the clinic of Dr. Vidal at the Saint-Louis Hospital. The patient, a girl of twenty years, had for three months had superficial lesions of the lips, which were thought to be eczematous. On her admission to the hospital, however, the diagnosis of chancre became incontrovertible. The subsequent inquiry regarding the method of inoculation showed some unexpected, because unusual, results. The patient was a factory girl, and there was working in the same part of the building a young man who had sores about his lips, and he as well as the girl and several others had frequent occasion to speak through the same speaking-tube. It was by placing his lips, which were sore with secondary symptoms of the disease, on the mouth-piece of the tube and leaving on it virus to be taken up that he infected the others, who also pressed their mouths against it. As the writer of the letter says, "If this is true, this mode of contagion deserves to be brought into notice."

THE NEW YORK SURGEON OF TO-DAY.

THE "American Practitioner" has a letter from a Kentucky physician who has been visiting among the surgical leaders of New York. This visitor appears to have formerly had several misconceptions, which have been set aright by ocular demonstration. He expected to see brilliancy in operative methods, but the acme of brilliancy is simply "satisfactory results"; there is no hurry. The value of time is acknowledged, but accuracy is valued even more. He found a carefulness and patience amounting almost to tediousness in operations. There is a rigid observance of antiseptic cleanliness and asepsis, without exception, among those surgeons—seven or eight are named—whose clinics were followed by the visitor, with much attention to surgical details to the end that hæmorrhage, shock, and exposure to cold may be reduced to the minimum. Anæsthesia

by ether is preferred, but in the case of children chloroform is used occasionally; in plastic face operations, ether by the rectum has its advocates. To sum up: he found an abundance of rare and classical operations performed with all the courage and authority of the master; the operator occupies the position of one who is beyond criticism, who acknowledges no restraint, except that of his judgment and conscience, and who is strengthened by his position to aim at everything possible to human skill and endurance.

THE CONFORMATION OF THE CHEST AND THE TENDENCY TO CONSUMPTION.

THE "Deutsche Medizinal-Zeitung" contains an article on this subject by Dr. Maszkowski. The writer states that it is maintained by many observers that disproportion in the form of the chest is an important factor in the tendency to tuberculosis. The results of a series of investigations have not led him to coincide with the conclusions of others in this respect. He selected 275 healthy individuals and the same number of persons suffering from various stages of pulmonary tuberculosis. These persons were subjected to close and careful comparative anatomical measurements, and from these the following conclusions were deduced: 1. That there existed no characteristic form of the thorax in those predisposed to pulmonary tuberculosis. 2. That changes in the form and diminution in the capacity of the chest, when such took place, appeared as concomitants and developed as the disease progressed. It was a matter for remark that the general form of the chest in some of the tuberculous patients was even more favorable, if irregularity was alleged as a predisposing cause of disease, than was found in some of the perfectly healthy persons.

THE TREATMENT OF PHLEGMASIA DOLENS.

THE "Union médicale" attributes to Delore and Poulet the following sketch of the proper treatment of phlegmasia alba dolens:

Absolute rest in the dorsal decubitus, the affected member placed in an attitude of forced extension, and a mixture of oil and chloroform applied; then cotton batting is placed around the limb, which is to be kept warm at an even temperature. Movement and repeated examinations are to be avoided. To combat pain, narcotics by the mouth, subcutaneous injections of morphine, and laxatives are in order. When pain begins to subside, alkaline and diuretic drinks may be given to hasten resolution of the œdema. If there is much œdema, the fluid may be allowed to ooze out through small incisions or through a drainage-tube. The patient should be kept in bed for thirty days after the cessation of pain and until the œdema has almost completely disappeared.

OPHTHALMIA PHOTO-ELECTRICA.

ACCORDING to the "Deutsche Medizinal-Zeitung," Dr. Lubinski has observed a peculiar form of inflammation of the eyes, usually in persons employed about electric lights, to which he has given the name ophthalmia photo-electrica. It appears to be due to looking at the very bright light from a short distance, without proper protection to the eyes, such as dark glasses. Soon after thus looking at the light a succession of bright spots appears before the eyes, each remaining but a short time and then being replaced by another. During the following night the patient suffers severe ocular pain, with lacrymation and photophobia. The lids are swollen, the movements of the eye are painful, and there is circumcorneal injection, with hyperemia

of the entire eye. This condition continues from an hour and a half to three hours. Then the patient falls asleep and awakes in the morning apparently well, except for a tired feeling in the eyes. The retinae are still hyperæmic, and sometimes venous pulsation can be seen. Lubinski recommends cold applications, very frequent instillations of cocaine, and chloral or quinine with morphine.

CARBOLIC ACID IN THE TREATMENT OF NEURALGIA.

DR. JULIUS GARST, of the Indian Reservation, Tacoma, Washington Territory, writes that recently a case of severe neuralgia, that had continued about three months, came under his care. The patient had taken the usual tonics, also quinine in large doses, and acetanilide, without relief. The pain was severe in the areas supplied by the infra-orbital, the supra-orbital, the temporo-malar, and the great occipital nerves, also in a spot a little to the left of the seventh cervical vertebra. There was no tenderness along the spine. Complete relief followed the injection of several drops of a fifty-per-cent. solution of carbolic acid at the points from which the pain radiated. Two weeks had passed, at the date of Dr. Garst's letter, without any return of the pain, and during that time trinitrin had been taken.

THE BABIES' HOSPITAL.

DR. L. EMMETT HOLT has been appointed attending physician to the hospital in the place of Dr. Sarah J. McNutt and Dr. Julia McNutt, resigned. The hospital is now permanently located in a building of its own on the corner of Fifty-fifth Street and Lexington Avenue, where it has a capacity of thirty-five beds. Any sick children under two years of age are admitted, excepting those with infectious diseases. In connection with this hospital a training school for nurse girls will be opened in December, under the patronage of Mrs. R. W. Chapin. The hospital has been in active operation in its new quarters since the middle of October. It will be formally opened to the profession and the public on December 6th.

ITEMS, ETC.

The New York Society for the Relief of the Widows and Orphans of Medical Men.—At the recent annual meeting, Dr. Henry Tuck, of the New York Life Insurance Company, was elected president. The treasurer's report showed a net increase of receipts to the amount of \$4,445.84 during the year, making the total assets \$166,163.63.

Change of Address.—Dr. L. H. Dunning, from South Bend, Ind., to No. 19 West Ohio Street, Indianapolis.

Society Meetings for the Coming Week:

MONDAY, *December 2d*: New York Academy of Sciences (Section in Biology); German Medical Society of the City of New York; Morrisania Medical Society (private); Brooklyn Anatomical and Surgical Society (private); Utica Medical Library Association; Boston Society for Medical Observation; St. Albans, Vt., Medical Association; Providence, R. I., Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, *December 3d*: New York Obstetrical Society (private); New York Neurological Society; Elmira, N. Y., Academy of Medicine; Buffalo Medical and Surgical Association; Ogdensburgh Medical Association; Medical Societies of the Counties of Herkimer (semi-annual—Herkimer) and Saratoga (Ballston Spa), N. Y.; Hudson, N. J., County Medical

Society (Jersey City); Androscoggin, Me., County Medical Association (Lewiston); Baltimore Academy of Medicine.

WEDNESDAY, *December 4th*: Society of the Alumni of Bellevue Hospital; Harlem Medical Association of the City of New York; Medical Microscopical Society of Brooklyn; Medical Society of the County of Richmond (Stapleton), N. Y.; Penobscot, Me., County Medical Society (Bangor); Bridgeport, Conn., Medical Association.

THURSDAY, *December 5th*: New York Academy of Medicine; Brooklyn Surgical Society; Society of Physicians of the Village of Canandaigua; Medical Society of the County of Orleans (annual—Albion), N. Y.; Boston Medico-psychological Association; Obstetrical Society of Philadelphia; United States Naval Medical Society (Washington).

FRIDAY, *December 6th*: Practitioners' Society of New York (private); Baltimore Clinical Society.

SATURDAY, *December 7th*: Clinical Society of the New York Post-graduate Medical School and Hospital; Manhattan Medical and Surgical Society (private); Miller's River, Mass., Medical Society.

Letters to the Editor.

A NATIONAL MEDICAL SOCIETY ON AN ELEVATED AND PERMANENT BASIS.

Boston, November 4, 1889.

To the Editor of the *New York Medical Journal*:

SIR: Recently, in conversation, a professional gentleman of experience (teacher in one of our schools) said that there were already too many medical societies in this country, and that the American Medical Association, if wisely conducted, would be quite enough; the various specialties could be arranged as sections or branches of this one general comprehensive body. Very soon afterward I had occasion to examine the renewed appeal for members lately made by an aspiring medical society; the weight of my friend's words became heavier—and yet more heavy as I further thought upon the number of existing social organizations in medicine. The name of any such company of individuals goes for little if not sustained by the character, personal and scholarly, not less than professional, of those in membership and in control; a high-sounding title appears absurd, or pitiful rather, when names of merited eminence are conspicuously absent.

Verily, considering the numerous societies and the evident tendency to the formation of yet more, the well-wishing observer must query what will the outcome be—chaos? disrepute? The very fact of there being so many independent, even rival, bodies, argues (to the disinterested and impartial) that the profession has still to find and *put in action* the elements and means of stability and popularity which attract men of worth—elements and means by which, at the same time, a widespread usefulness may be attained.

Inasmuch as the present seems to be a society-generating epoch, I am emboldened to hope the hour opportune to establish in the United States a national organization on such a basis that good results and permanence will follow. In pursuance of this idea, I venture to bring again before the profession (and the general public) a *plan* (outlined in the "*Boston Medical and Surgical Journal*" of July 25, 1872) the main points of which are given below. For details the reader is referred to the original paper.

In future, then, let this (one and only) association have a truly representative governing body, elevation to which should be the

reward of scholarly accomplishments, professional ability, usefulness, and eminence. Two delegates from each State would, probably, be a sufficiently large number for all practical purposes. These should constitute the National Council of this American Medical Society. It should meet at least once a year, and continue in session long enough to attend to all legitimate business, scientific and professional, giving advice, editing rules (on ethics), publishing transactions of value, etc.—everything concerning the interests of the profession throughout the Union—being thus a complete senate, as it were. The term of service should be six years, each State electing one delegate or senator every three years. To free them as much as possible from local and temporary influences, they could be chosen by a State council, which, for this and other duties, might be composed in the following manner:

Let each of the several State societies select from among its most experienced and best qualified men a number equal to that State's representatives in Congress; that is, one perhaps from each Congressional district, one third (as near as may be) each year. These should hold office for three years, and be the State councilors of the national society or association. They could meet yearly or oftener, and do the work fitly falling upon a State or local committee. Each of these State boards should, once in three years, choose a national councilor from among their own number, or at large, as found best qualified and worthy. These local bodies could do preliminary work, revision of which should be left to the experience, sober judgment, and deliberate action of the National Council, whose members, moreover, might be allowed a seat, without a vote, at sessions of the State Council, in order to inform themselves of matters under consideration. Members of the State Council could be permitted the privilege of a seat, without a vote, at meetings of the National Council.

Matters of business and control should be left entirely with the National Council. The State councils (and societies) could then devote all their energies to professional and other allied scientific work. Existing State societies might be branches of the larger organization, and their members be the ordinary members of the National Association. Specialty societies and the present subdivisions within State limits could remain very much as they are now—all being united in one national confraternity. General meetings could be arranged by the National Council for orations in medicine and surgery, reports, discussions, etc., as deemed advisable, on which all ordinary members should be entitled to attend. Of course, various questions for solution arise when details are thought of, but the obstacles to bringing all our medical societies into harmonious co-operation or complete organic union do not seem insuperable—may it not be hoped?

As may be observed, this plan forms a governing body as a beginning; but, is not that the way in which any successful enterprise is started and carried on? The brain must direct, or the less intelligent (or less moral) members (*corporis*) will shipwreck the company.

Judged by their actions, the great majority of the more prominent portion of the profession in this country do not seem to recognize, in any existing organization commensurate with our territorial domain, a national medical society on an elevated and permanent basis. The arrangement above referred to, thought superior to any other yet offered, appears to be easily feasible (without revolution), to be well adapted to readily place any association which may adopt it enduringly upon a dignified professional and scientific basis, and to render fellowship and position therein attractive to men of merit. Praiseworthy effort of mediocre intellect could be rewarded by membership or office in the State societies and councils, while the Na-

tional Council would offer fit prizes for the honorable ambition of genius and eminent talent. "Under such a plan the American Medical Association would soon become a 'power' in the land; and connection with it, even as a member merely, be an object of just pride with every high-minded and well-educated practitioner throughout the country."

Moreover, as international reunions are the custom of the day, it may not be superfluous to think upon the opinion which medical men outside society bounds, or the profession abroad, would have if there were an association that should really represent those who devote themselves to the science and art of medicine in America.

JURE ET BENE.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

Meeting of November 7, 1889.

The President, Dr. ALFRED L. LOOMIS, in the Chair.

A Plea for the Practical Utilization of Hydrotherapy.—

Dr. S. BARUCH, in a paper with this title, opened with a review of the history of the treatment of disease by hydrotherapeutic measures from the time of Hippocrates until the present age. He also quoted the opinions of the leading clinical teachers of Germany, France, and Italy as evidence of the high appreciation with which scientific treatment by means of water was regarded by recognized therapists of the present day. The use of water, he asserted, had maintained its hold upon some of the most able physicians in every century of medical history, despite the prejudices of the laity and of the medical profession at large. These prejudices had failed to abolish it from the therapeutic armamentarium, as had been the fate of many other equally vaunted remedies. Indeed, it was to-day more firmly entrenched than ever, not only on clinical grounds, but because its use was based upon well-ascertained and exact physiological facts. From carefully elaborated experimentation on man and animals, certain data as to the physiological action of water were deduced. The caliber of the blood-vessels could be diminished to any extent by cold water, until the coats of the vessels would lose their tone altogether. The application of cold water resembled that of irritants in producing reflex action from the central organ. Irritants excited considerable influence on the heart and vessels, and as, in proportion to the irritability of the individual, powerful cutaneous stimuli would lessen or weaken cardiac action, relatively weak stimulation would strengthen that action and narrow the lumen of the vessels. Changes produced by continued stimulation of the skin lasted sometimes after its removal, and relaxation of the pulse often followed powerful stimulation. The excitant effects of weak cutaneous stimulation continued after its conclusion, but were also followed by a less pronounced relaxation. Powerful cutaneous stimulation was always followed, after a period of warming, by a cooling down of the body heat which might last over an hour. Sometimes this occurred during stimulation, but, as a rule, took place after its cessation.

From observations made on the circulation of the rabbit trephined for the purpose, definite results of the effect of water stimuli were arrived at. A cold stream of water applied to the belly or back of the animal was at once responded to by the blood-vessels of the pia mater, contracting them if brief, dilating them if prolonged. A warm compress applied to the belly or back contracted the vessels. Cold baths produced dilatation

of the vessels in proportion to the extent of the body immersed. It was only after prolonged immersion in cold baths that a contraction of the vessels, as a result of the reduced blood temperature, took place. Immersion of the body in warm water brought about decided contraction of the vessels of the pia mater, and they remained contracted for some time afterward. By demonstrations on man it was found that the application of cold to certain definite parts of the surface exercised a positive influence upon definite vascular areas. It was a well-known fact that the human body was not affected by cold and heat like an inanimate body; that it reacted against the thermic stimuli. It must be remembered that the vital processes by which the system endeavored to protect itself against thermic disturbing influences were also definitely ascertained. By means of the calorimeter it had been positively demonstrated that the radiation of heat depended upon the cutaneous circulation. It was found that during the most active condition of the skin function three and a half times more heat might be retained in the body than the average loss of heat, or that it might be increased three and a half times. As the great bulk of the heat was produced in the voluntary muscles, which formed about one half of the entire body, it followed that the increased activity of the muscles aroused by the external application of cold was capable of producing an increase of heat. In the muscular reaction produced by the warm moisture of the pack, a condition most favorable to the nutrition of the muscles was brought about. The excretion of carbon dioxide was increased by the application of cold. It was also shown that there was a corresponding increase in the consumption of oxygen. The writer said that, from the conclusions of reliable experimenters, we were warranted in affirming as a physical law that, under the influence of cold, oxygen combustion was energized and augmented, on condition always that refrigeration did not exceed certain limits and cause depression of the rectal temperature below 30° C. (86° F.). It was found that the wet pack increased the elimination of the fluids and solids of the urine.

The writer did not maintain that in hydrotherapy we possessed a universal remedy, but that it was an indispensable auxiliary to other methods of treatment. His definition of hydrotherapy was the utilization of water at any temperature, internally or externally, for the treatment of disease. He did not say for the cure of disease. He hoped by this definition to emancipate it from hydropathy, or "cold-water cure." In dyspepsia and gastro-intestinal diseases water had been used with great success. By removing the products of fermentation and cleansing the mucous membrane, it restored tone and vigor to the gastric lining and enabled the natural forces to come into play. Another class of cases which offered a broad field for the employment of hydrotherapy was that to which belonged neurasthenia and other nervous diseases—rheumatism, gout, anæmia and chlorosis, obesity, and scrofula. In these cases the benefit derived from the application of water seemed to be produced by an increase in assimilative processes and in nutritive and tissue changes. He divided neurasthenia into two types—the erethetic and the true asthenic. The former was characterized by an instability of nerve forces, the latter by their enfeeblement. The former required soothing ablutions, or prolonged wet pack, followed by the half bath of 65° to 70° F. once or twice daily. The asthenic form, on the contrary, required the stimulus from the active reaction produced by the impingement of a mass of cold water for a brief period. Under the author's observations many cases of hysteria had yielded to the tonic influence of various hydrotherapeutic procedures. In chronic constipation the results were excellent. Statistics whose source was unimpeachable demonstrated that the mortality of typhoid fever had been reduced from twenty-five per cent. to two per cent. by the sys-

tematic bathing under Ernest Brand's method. The author gave the histories of a number of cases which had been considered hopeless, but in which the patients were now in comparatively good health from the application of water as a remedial agent. He said that the results in the Montefiore Home for Chronic Invalids were exceedingly good considering the desperate and hopeless class of cases, and that the last report recorded six cured and thirty-five improved sufficiently to return to their homes and daily work.

Dr. G. A. PEABODY thought it was deplorable that it was possible to enumerate only two or three physicians in this great city who were known to avail themselves of hydrotherapeutics in the treatment of typhoid fever. The old prejudice still existed that it was a dangerous procedure suddenly to lower the temperature of the medium by which a patient was surrounded. The results at present achieved from the routine treatment of typhoid fever were by no means satisfactory. The statistics of mortality from the disease in this country was such as would be considered unjustifiable in any European capital. The death-rate here was from twenty to thirty per cent., and during the civil war had been from forty to fifty per cent. Dr. Brand had collected the data for a list of cases numbering about six thousand in which hydrotherapeutic treatment had been employed by physicians having faith in it. The mortality in these cases showed only 3.9 per cent. In the French and Austrian armies the method was not employed systematically from the beginning of the disease, and the typhoid-fever mortality-rate was 36.9 per cent. in the French and 27.4 per cent. in the Austrian army. In the German army, where there existed more or less system in respect of this method of treating typhoid fever, the death-rate was 9.6 per cent., and in the second army corps, in which the treatment was systematized, the mortality-rate was only a little over three per cent. He thought the profession in America had as yet not risen superior to its own prejudices against the use of the bath in typhoid-fever cases, while the expense and difficulties attending the conscientious administration of the system might also have stood somewhat in the way of its more general adoption. As to the various methods for the employment of the treatment, he thought there was little question but that the cold bath at from 65° to 68° F. was the most preferable form. The baths should be begun as early as possible in the cases and should be continued at intervals indicated by the patient's temperature, which should not at any time be allowed to rise above 102° F. Drugs he considered were at present employed in a most illogical manner. There was no sense in administering antipyretics in such a way as to keep a patient's temperature alternating between 98° and 106°. This course was anything but scientific, and if by the cold bath a uniform temperature of 102° could be assured, at least the comfort of the patient would be thereby promoted and complications prevented. Many patients came to the hospitals at a late stage of the disease with their hearts already enfeebled, their lungs not working well, and showing general symptoms of congestion, and of course it was not advisable to plunge such patients into cold water. His own practice was to employ in these cases the wet pack, and it always answered well. The sheet should be wet with water at about 55° to 60°, then wrung out, and during its application ice might be rubbed over it. The graduated bath he did not approve of; it was more troublesome to manage and more trying to the patient. Cold affusions were not advisable, in his opinion, as they gave too great a shock. The cold sponge-bath gave unsatisfactory results. It was a most unwise and reprehensible practice to apply cold in cases in which the internal temperature was high and the surface of the body cool.

Dr. A. A. SMITH said that he was a warm advocate of the

use of the bath, and it was his practice to employ it in typhoid cases in his service at Bellevue Hospital. He was grateful to the author of the paper for the suggestions thrown out as to the utility of hydrotherapeutic treatment for cases of the neurasthenic type. Hysteria, it had also been stated, was amenable to this line of treatment. When the speaker was an interne at Bellevue Hospital, acute hysteria, with convulsions or coma, was treated by filling a large syringe with cold water, armed with which, the doctor would stand at the foot of the bed and endeavor to direct a stream of water so as to hit the patient between the eyes. While this method was often effective he did not consider it hydrotherapy of the best kind, and he did not allow it to be practiced now. He had arrived at the conclusion that, underlying all these cases of hysteria, there existed some nerve disease which a conscientious physician could not afford to ignore. While not wishing to depreciate the value of the hydrotherapeutic treatment as a valuable adjunct in cases of neurasthenia, hysteria, and allied conditions, he thought that its use had been at present too limited to warrant the assumption that the method would certainly result in a cure.

Dr. M. PUTNAM JACOBI read the history of a case of typhoid fever which had come under her immediate notice at the New York Infirmary, and in which treatment by the bath had been systematically carried out. The patient was admitted on the eighth day of the illness. Baths were given from the day of admission until the thirty-second. The bath was administered whenever the temperature rose to 103° or over, and was for some time required about every three hours. The case was one of severe infection, for there were early and for a time violent delirium, very feeble and gaseous pulse, great prostration of strength, sordes and brown tongue as early as the eighth day, pulmonary congestion, small bed-sores, and immense destruction of blood-corpuscles, as shown by the large amount of coloring matter found in the urine by the sulphuric-acid test; finally, the high and persistent fever. The duration of the fever did not seem to be markedly lessened by the treatment, but its danger was removed by lessening its intensity and introducing incessant but not too profound remissions. On the second day of treatment the evening temperature was over 106° F., but never afterward. Though the fever lasted forty days, all serious symptoms disappeared within the first week, and no new ones appeared. The first bath was given at a temperature of 70° F., but was followed by temporary collapse and violent delirium. After this the temperature of the baths was 80°, then 75°, and of only five or ten minutes' duration, reaching finally fifteen minutes' duration. This method differed from that of Brand in its intensity, and possibly for that reason the reduction of temperature effected by each bath was not so marked as was stated by others—thus, 2.5° during the first week, 3.1° during the second, and about 4° the third week. As far as it went, this case tended to justify Dr. Baruch's assertion that the cold-bath method was to be considered as contrafebrile rather than antipyretic. It was a question whether repeated exposure of the nervous system to an extensive amount of temperature change could be practiced with impunity. It also seemed to the speaker that clinical evidence in favor of cold baths was far less for other fevers, especially the eruptive, than for typhoid. Possibly the fact that the skin and subcutaneous tissues, with their heat-regulating mechanisms, were involved in the eruptive fevers, might have something to do with this difference. Probably, also, the germs of different infectious diseases behaved quite differently toward different temperatures.

Dr. G. B. FOWLER said he was surprised to learn that the bath was not more universally in use. He had employed it ever since commencing practice. It was his custom to use it in scarlet fever, pneumonia, and the bronchitis of children. He expected

from it in such cases more than the mere reduction of temperature. He looked for it to act in a curative way, for by the radiation which it produced it would bring about changes in nutrition physiologically less violent than by the use of other remedies. The author of the paper had omitted the consideration of the therapeutic value of water as a beverage. In cases of fever the speaker held it as important that water should be given the patient to drink as that it should be applied externally. He always advised that these fever patients should be given access to plenty of water.

Dr. BARUCH, in the course of a brief reply, said that, as to the curability of hysteria by the use of hydrotherapeutical methods—the feasibility of which Dr. Smith had expressed himself somewhat skeptical upon—he considered that, when he stated that patients of this type, who had been examined and pronounced incurable before admittance to the Montefiore Home, could be sent out benefited, he was adducing a pretty convincing proof that there was something in hydrotherapy, when added to other means which had already been tried.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN SURGERY.

Meeting of November 11, 1889.

Dr. ROBERT ABBE in the Chair.

Suture of the Quadriceps Femoris Tendon.—Dr. W. T. BULL referred to a case which had been made the subject of a paper read before the Surgical Society last year, in which, after suturing the quadriceps tendon, the speaker could report recovery of the motions of the joint and a generally very satisfactory result. He regretted that the patient was not present, but thought it interesting to be able to complete the record begun by introducing another case of the same general character. He then presented a young man, aged seventeen, who, on the 29th of last April, was admitted to the New York Hospital with a cut across the knee received from a circular saw. The injury was three quarters of an inch above the patella, laying open the joint and denuding the internal condyle of the femur of its cartilage and severing the quadriceps femoris. A three-inch incision was made upward from the center of the wound, and the ends of the tendon were approximated and sutured with catgut. A drainage-tube was inserted and removed on the fourth day. The patient was up and around, with his limb in plaster of Paris, on the tenth day. He was discharged at the expiration of the fourth week, and the plaster dressing was removed three weeks later. Motion had gradually been restored to the joint, and at the present time the power of extension was normal, and there existed no interference with flexion. While in such accidents as the one just described there could be no doubt as to the propriety of suturing the tendons, in subcutaneous ruptures of the tendons some hesitation might be felt. His search for statistical and other information on the point had not enlightened him much; but the result obtained in his first case would lead him to attempt suture and not leave the repair to nature unaided. Though this question might not be of the same interest as had pertained to that of dealing with simple fracture of the patella, still the status of surgical procedures in the latter case was pretty well fixed, while the best method of dealing with subcutaneous rupture of the quadriceps femoris was still open to settlement.

Suture of the Ligamentum Patellæ.—Dr. R. G. WIENER showed a patient whose tendon he had sutured at a point below the patella. The operation had been done in this case some five years ago by Dr. Sands at the Roosevelt Hospital, and with good results as to union and motion. In December last the

patient had fallen down stairs and had ruptured the tendon once more, when he came under the speaker's care at Charity Hospital in June last. The patella was found to be four inches above the joint, and the power of extension was entirely absent. On the 29th of June an incision nine inches in length was made, laying bare all the tissues down to the joint. No remains of the patellar tendon could be discovered. It was impossible to make the patella approach its proper relation to the joint, and the operator then divided the quadriceps-femoris tendon above the patella, and, after restoring the latter to its proper position, drilled both it and the tibia, and secured the patella to the latter with stout wire. The continuity of the tendon above was then restored by suture. After a lapse of two weeks, primary union was found to have resulted throughout.

The CHAIRMAN thought the case seemed to answer Dr. Bull's question as to the advisability of dealing with these subcutaneous ruptures by operation. Motion appeared to be fairly restored.

Double Femoral Hernia in a Boy.—Dr. MILLIKEN presented a case of double femoral hernia in a boy, explaining that the lesion was a rare one, being seldom observed in persons under twenty years of age.

Colo-colostomy for Cancer.—Dr. WILLY MEYER presented a female patient, thirty-four years of age, upon whom he had performed a colo-colostomy for irremovable cancerous growths causing stricture at the hepatic curvature of the large intestine. The operation had taken place at the German Hospital on July 22, 1888, and the case had been reported in detail in the "Medical Record" and "New York Medical Journal" of November 27, 1888. The speaker said that he would not recapitulate the details of the case further than to state that the artificial anastomosis between the transverse and ascending colon had been made without the use of Senn's bone plates—the only material recommended up to that time for use in this class of operation—but had been completed by a double row of continuous catgut suture. The patient had made a rapid recovery and had constantly improved since the operation, immediately previous to which she had weighed only one hundred and twelve pounds, while four months later she had weighed one hundred and fifty-five pounds. Her present weight was one hundred and fifty-one pounds. Twelve weeks after the date of the operation the patient had felt sufficiently strong and well to attend to cooking and general housework. At the end of February of the present year she had resumed her former position as stewardess in the service of the North German Lloyd Steamship Company. Since then she had made three trips from Bremen to Baltimore, visited England six times, and was now here after her third trip to New York, thus proving her ability to undertake quite heavy work. The patient had stated that her appetite was excellent and that she could with impunity partake of any kind of food except green vegetables and salads. She also had a normally formed passage from the bowels daily, and this without the use of cathartics or enemata. Only occasionally pain was present on the right side of the abdomen. Though no microscopical examination of the growth had been made, the speaker considered the diagnosis of cancer as beyond question. There was at the present time a distinct, uneven growth in the right hypochondriac region which was painful on pressure, also still the long, hard cord running parallel to Poupart's ligament, an infiltrated carcinomatous ligamentum coli. Furthermore, there was now an unevenly indurated inguinal gland on the right side which the patient stated had been of only half its present size eight months ago. The speaker apologized for presenting the same patient to a meeting of surgeons for the second time. He thought his possible justification lay in the fact that it was the first case, so far as he could ascertain from investigation into

the literature of the subject, in which an artificial anastomosis between two different regions of the colon had been successfully established. He also deemed the continuous general improvement in the health of a patient afflicted with cancer of the gut not admitting of removal a matter of sufficient interest to lay before the Section.

Dr. BULL asked why, in consideration of the condition of the patient at present, it would not be proper to entertain the idea of removing the growth. He asked this question without being familiar with the previous history of the case.

Dr. MEYER replied that he would certainly have removed the growth at the time of the first operation, but it was seen that the whole of the ascending colon was studded with the carcinomatous infiltration and he would have had to cut it entirely away, as well as part of the transverse colon. He had not thought it wise to subject the patient to any more formidable operation, and so had only stitched the portions of the colon together.

Carcinoma of the Neck.—Dr. F. S. DENNIS presented a patient from whose neck he had three weeks before removed a vascular sarcoma of fifteen years' standing. This latter fact he said was the point of interest, as, of course, sarcomatous growths in any other region were very malignant. Some slight hardness was to be made out about the parotid gland, but he did not think that in so short a time it indicated any return of the growth. The tumor was situated beneath the parotid and reached to the base of the skull, and was of about the size of a child's head.

Suppurative Articular Rheumatism.—The speaker then showed a case which he said was quite rare. The patient had been brought into the hospital suffering from acute articular rheumatism, upon which condition suppuration of the knee joint had supervened. The pus formation had been ushered in by repeated intercurrent chills and a temperature of 103° F. The speaker had opened the joint in several places, giving perfect drainage at three points and affording opportunity for thorough irrigation. The case was interesting, because it was seldom that, after a joint had been opened for acute inflammation, so good a result followed. A quart of pus had been taken from the joint.

Paralysis of the Arm after Subluxation of the Humerus.—Dr. DENNIS then presented the case of a boy who had last summer fallen from a horse. The patient had been supposed to have sustained a dislocation of the head of the humerus, which had been reduced. At the present time there existed complete paralysis of the arm and subluxation of the shoulder joint. The question at issue seemed to be as to whether the paralysis was due to laceration of the brachial plexus or to a fracture which, in process of union, had involved the nerves in the new formation. Sensation was unimpaired at the back of the arm, but was lost on the fore part. The speaker proposed to cut down and open the joint and dissect down to the plexus, and unite any divided ends he might find torn.

Dr. F. KAMMERER inquired if any histological diagnosis had been made in the case of sarcoma of the neck, because he had had several such cases in which he had done extensive operations. He had always considered them more malignant than bone sarcomata.

Dr. S. D. POWELL thought that the boy's case was one of atrophy of the deltoid with relaxation of the capsular ligament to which was due the slipping down of the head of the humerus. He did not think the head of the bone really left the glenoid cavity.

Dr. A. G. GERSTER had seen paralysis of the nerves composing the brachial plexus followed by dislocation of the shoulder joint in fractures of the humerus which took place in the

vicinity of the joint. He recollected four cases, in all of which the paralysis had resulted from traumatism. In all these cases function had been restored in time. In the case of a boy who had sustained a fracture of the neck of the scapula, function had returned, although the paralysis had persisted for a year and a quarter. The fracture, however, was still present and could yet be demonstrated. He therefore deemed it better to wait and subject these patients to treatment calculated to restore function. Suturing of the nerves could be done a long time after the initial injury with every prospect of success. In the matter of the knee-joint case presented by Dr. Dennis, with a history of acute articular rheumatism, it had occurred to the speaker that it might have been one of infectious osteomyelitis. The fact of an abscess being found in the leg seemed to indicate this. It was extremely rare to find pus in joints affected by acute articular rheumatism.

Dr. DENNIS explained that the case had been referred to his service at Bellevue Hospital from the medical side, where he believed the diagnosis had been made in the service of Dr. Janeway.

Dr. R. F. WEIR said that Dr. Dennis seemed to have got a very good result—better, in fact, than was customary at the hands of himself and many of his colleagues. Mr. Treves had suggested and practiced thorough and continuous irrigation of the joint in these cases, water being allowed to flow through the joint for a number of days—in one instance for twenty-seven days. This washed out the pns as it formed.

Dr. DENNIS stated that he had at present a case of chronic arthritis in which the tubes through the open joint were flushed out from day to day. In the case he had presented he had not supposed for a moment that the man would get well, but the operation seemed the only chance indicated.

The CHAIRMAN thought the case of dislocation one of special interest. Such paralyzes were generally considered as due to laceration of what had been termed by Erb the fifth root group, and as occurring near the transverse processes, and corresponded to paralyzes in infants resulting from pressure of this root, due to forceps injury or cramped position *in utero*. If the boy's weight had been directed to the shoulder when the accident happened, it seemed that the various nerve roots would have been torn higher up, and that there the lesion would have to be looked for.

Cancer of the Rectum; Removal of the Coccyx and Part of the Sacrum for Extirpation of the Growth.—Dr. GERSTER presented a Hebrew laborer upon whom he had made an excision of the rectum for cancerous growth. The man had suffered for some six months before admission to the hospital from difficulty at stool. When admitted he was somewhat emaciated and cachectic. Examination had revealed a rather irregular nodular tumor, occupying the lower portion of the rectum and situated as high as the finger could reach. The growth sent out a finger-like extension to the margin of the anus, involving at that point the sphincter. Careful exploration under anæsthesia showed no involvement of the glands, but small portions of the tumor removed for microscopical examination showed it to be a glandular cancer. The point in the case was that, in operating, he had adopted the plan of removing, in addition to the coccyx, as was the custom, a large portion of the sacrum. It was well known to operators that the removal of growths occupying this part of the pelvis was a procedure fraught with considerable difficulty by reason of the lack of space. This was particularly so in men, in whom the pelvis was narrower than in women. The vessels retracted as soon as they were cut, and there was great danger from uncontrollable hæmorrhage. Then, whenever the operation extended high up, the peritonæum was necessarily included, and, as long as the surgeon was unable to recognize

when he wounded it, infection was likely to result. But, if everything was clear and the necessary precautions could be taken, this danger was reduced to a minimum, as the wounded peritonæum could be closed, and the operation and subsequent treatment be conducted extraperitoneally. He considered the suggestion of the removal of such a sufficiently large portion of the sacrum as would enable the surgeon to know exactly what he was doing a very important improvement in this operation. He believed the method feasible, not only in cancerous growths of the rectum, but also in those of the uterus, and for such inflammatory processes between the rectum and bladder as perforated the latter viscus and could not be reached in any other way. It would also be noticed that he had succeeded in giving his patient a practicable sphincter, which enabled him to retain soft fæces.

Fractures of the Base of the Skull.—Dr. DENNIS then read a paper on this subject. He considered that the treatment of fractures of the base of the skull ought to be governed by the same careful technique as was followed in the more modern operations. Though the injury was generally regarded as uniformly fatal, and all the text-books agreed as to the mortality point, still he believed such fractures to be amenable to surgical treatment, and considered that the great majority of patients so injured died from causes which could be wholly prevented by the surgeon. There were, he continued, three varieties of fractures of the base of the skull—those in the anterior fossa, in the middle and posterior fossæ, and in the posterior fossa. Three symptoms were characteristic of these fractures, and these were hæmorrhage, the escape of cerebro-spinal fluid, and coma. Though these symptoms were not severally of sufficient import to determine a diagnosis, yet, when found together, they constituted the essentials for an absolute diagnosis of basal fracture. In cases where the membrana tympani was not ruptured and the characteristic bleeding from the ear or nose was absent, the blood might find its way to the stomach, and then the first intimation of the hæmorrhage going on from the brain would be the hæmatemesis. Then, even when bleeding did occur from the ear, it was not a reliable diagnostic point, as it might be simply the direct result of a lacerated membrana tympani, or occur from the soft tissues in the canal. The cerebro-spinal fluid usually found its way from the brain through the transverse fissure in the petrous portion of the temporal bone and a tear in the arachnoid membrane. The discovery of shreds of brain-substance in any fluid discharged from the ear rendered the diagnosis absolute. Coma was present, in a greater or less degree, according to the severity or situation of the lesion, and careful observation and consideration of the physiological disturbances would determine approximately the extent to which the lesion was affecting each nerve.

Fractures at the base of the skull should be considered in the same category as those of the vertex or of long bones, and, this admitted, they should be treated on the general principles of aseptic surgery, and with the same attention to detail and technique as was given to other fractures. The patient should be removed to a room specially prepared, and isolated from such septic influences as would be present in the operating-room of a hospital. The scalp should be shaved and thoroughly washed with soap and water, and irrigated with a 1-to-500 bichloride solution. The external auditory canals and nasal passages should also be thoroughly cleansed and irrigated, and these canals protected from the entrance of septic germs by plugging with iodoform gauze and absorbent cotton. In ordinary fractures of the base there would be rupture of the membrana tympani and discharges from the auditory canal; but if the membrane was not ruptured it would be found distended by the accumulation behind, and it might in such event be wise to puncture it and

allow the escape of the blood and cerebro-spinal fluid. For the purpose of further insuring such patients against the possibility of infection, the speaker recommended the wearing of a specially constructed cap of bichloride gauze or carbolized absorbent cotton. This cap should cover the entire head and protect everything. These cases too often ended fatally from causes which could be prevented by the surgeon—such as basilar meningitis, cerebral abscess, pyæmia, suppuration in the petrous portion of the temporal bone, leptomeningitis, and other complications. He further suggested that all cases of injury about the head, associated with hæmorrhage, should be treated with antiseptic precautions. The speaker then presented a young man who had recovered from fracture at the base of the skull. This patient had struck his head upon a rail in falling from the top of a car. The symptoms were hæmorrhage from the ears, nose, and mouth, coma, and stertorous breathing. The day following the injury the patient had to be tied in bed. There was also discharge of cerebro-spinal fluid from both ears, which had continued for two weeks, and the life of the patient had also been threatened by a severe glossitis. The patient had received such treatment as was generally indicated in the speaker's paper, the discharge being kept perfectly aseptic, and in one month from the injury had left the hospital, and at the present time was in good health and able to work as well as ever.

Dr. WEIR said that in fractures of the anterior portion of the base of the skull it was generally recognized that the prognosis was the most encouraging, in those occurring in the middle portion less so, while those of the middle and posterior or posterior fossæ alone were the most serious. So far as his memory served him he could not, however, recollect that the fatality in these injuries had resulted specially from septic complication. That the patients had died from hæmorrhage, or the presence of the resultant clot, had been demonstrated at the post-mortem examinations in many instances. When these cases did not terminate thus primarily from hæmorrhage, and the patients lasted for twenty-four or forty-eight hours, there was reason to hope they would be able to contend against the inflammatory processes and to feel reliance that they would come through without permanent damage. In the New York Hospital it was the custom to wash out and plug the ears with iodoform packing. He did not think they had resorted to the use of the cap. He had endeavored at one time to render the nasal cavity aseptic, but, on reflecting that the air was coming from behind and that he could not wash out the nose, and that any fluids passed into the nostrils would not reach up any distance, he had abandoned the procedure.

Dr. GERSTER said he was fully in accord with Dr. Dennis as to the importance of cleanliness in these cases of fracture. The author of the paper had, however, spoken of bone fractures in general by way of comparison, but the speaker thought that it should be remembered that many of these fractures did not communicate with the open air, and such simple fractures possessed the best of antiseptics in their surroundings. In basal fractures of the skull, where no channel of communication existed with the air, such rigid precautions were not indicated. There were basal injuries which were not bone fractures but which yet led to bone suppuration or osteomyelitis. Still he was of opinion that many cases of meningitis could be traced to neglect of such precautions as might ward off suppuration.

Dr. J. A. WYETH said he thought the question of drainage in this class of fractures worthy of more special consideration. It went without saying that every modern surgeon recognized and accepted the desirability of rendering aseptic any wound tissue, whether at the base of the skull or the base of the heel. In a very severe case, reported by a recent writer, in which the fracture at the base was complicated by compound fracture of

the frontal bone, the very courageous surgeon, knowing he could not hope to clean out the immense wound, had bored through the horizontal plate of the ethmoid bone and drained by means of a tube passed up the nose and through the perforated ethmoid plate. By thus establishing a perfect drainage the surgeon had saved the patient's life. Such methods might be applicable for drainage of the posterior fossæ.

Some further discussion ensued, followed by a brief reply from Dr. Dennis.

Dr. KAMMERER then reported a case of operation on a sarcoma of the dura mater and ligation of the longitudinal sinus.

Book Notices.

Diphtheria: its Nature and Treatment. By C. E. BILLINGTON, M. D. And Intubation in Croup and other Acute and Chronic Forms of Stenosis of the Larynx. By JOSEPH O'DWYER, M. D. New York: William Wood & Co., 1889. Pp. iv-326. [Price, \$2.50.]

THE chief object of the first part of this excellent work is to enlarge and develop the author's views on diphtheria as briefly expressed in his previous writings on the subject, and to review the more recent methods of its therapeutics. He gives a brief but important summary of the history of this disease, both before and after the time of Bretonneau, whose investigations placed diphtheria in the definite place it occupies to-day in nosology.

The chapter on ætiology is a comprehensive *résumé* of our present knowledge on the subject and is full of instruction. It is not so much a discussion of the opinions of other authors as it is a series of abstracts of their researches. What will interest the reader is the able exposition of the present status of bacteriological investigation regarding the cause of this disease. The positive data touching the two varieties of germs found in diphtheria, resulting from the works of Oertel, Klebs, Löffler, Roux, and Yersin, are clearly enunciated and constitute the most recent progress in this direction.

After devoting twenty-two pages to the pathology of the affection, the author reviews its symptoms as evoked by the numerous localizations of the diseased area—in the respiratory tract from the nasal passages to the alveoli of the lungs, in the digestive tract from the lips to the anus, in the genito-urinary organs, and on the skin. This part of the work is the least satisfactory, but it is completed and amplified by a very excellent chapter on diagnosis, rendered still more practical and instructive by fine lithographic plates from drawings by Dr. Henry Macdonald, which give a fair representation of the diphtheritic patches as seen on the palate and the tonsils of the living patient. But what constitutes the best feature of this work is the complete and painstaking manner in which the most important portion of all is written—that concerning the treatment. The author deserves great credit for his systematic and separate description both of the different modes of employing remedies in this disease and of the multitudinous substances which have been and are still administered. He treats of caustics, astringents, agents for the destruction of false membrane, solvents of false membrane, and, above all, antiseptics, of which the description and the directions for employing them cover forty of the one hundred and fifteen pages devoted to treatment. The author gives his own method of treatment, including that of nasal and of laryngeal diphtheria, and adds a sufficient description of tracheotomy, with cuts of the instruments used.

The last forty pages are written by Dr. O'Dwyer, who here summarizes his previous writings on intubation, an operation which he has perfected and which is already well known by the profession. He describes the instruments and the operation in full and shows its advantages. We know of no book more practical and satisfactory to the practitioner who has to treat diphtheria than this one.

GENERAL LITERARY NOTES.

AMONG recent foreign publications we note the following:

F. ALCAN, Paris.—L. Landouzy, "De la mortalité parisienne du premier âge (enfants de un jour à deux ans)." — Lardier, "Hygiène publique. De l'isolement et de la désinfection dans la rougeole." — Macario, "Manuel d'hydrothérapie." (2fr. 50.) — Charles Ferré, "Du traitement des aliénés dans les familles." (2fr. 50.)

J. B. BAILLIÈRE, Paris.—L. Raphael, "Diphthérie et choléra." (4fr.) — Nothnagel and Rossbach, "Nouveaux éléments de matière médicale et thérapeutique." Translated from the German by J. Alquier. 1 vol. (16fr.) — A. Collineau, "L'hygiène à l'école." (3fr. 50.)

BUREAUX DU PROGRÈS MÉDICAL, Paris.—Bourneville and Rousset, "Manuel de l'assistance publique à Paris." (0.30c.) — E. Huet, "De la chorée chronique." (5fr.) — L. Minor, "Contribution à l'étude de l'étiologie du tabes." (2fr.) — Parinaud, "Compte rendu du service ophthalmologique pour l'année 1888." (1fr.) — B. Narich, "Proposition d'un nouvel embryotome rachidien avec treize expériences à l'appui." (1fr. 50.) — P. Philippe, "Traitement des anévrysmes par l'introduction de corps étrangers dans la poche anévrysmale." (1fr.)

A. Cocoz, Paris.—A. Weber, "Traitement par l'électricité et le massage." (5fr.)

O. DOIN, Paris.—A. Dufour, "Contribution à l'étude des auto-intoxications, des manifestations morbides du surmenage physique." (3fr.) — M. Natier, "Fièvre des foies. Pathogénie et traitement." (3fr.) — J. Chopin, "Élimination de l'acide salicylique suivant les divers états des reins." (2fr.) — F. Raymond, "L'étude des maladies du système nerveux en Russie." (3fr.) — Joal, "Étude étiologique sur l'œsophagisme." — P. Morot, "De la congestion du foie, esquisse de séméiologie clinique." — L. Testut, "Traité d'anatomie humaine." (16fr.)

GAULHIER, Nice.—Berlin, "Le lavage de la vessie par la voie subpubienne, comme complément de la fonction évacuatrice."

GONNOUILHON, Bordeaux.—G. Morice, "Considérations générales sur la résorcine. Son action sur les surfaces ulcérées et le lupus en particulier."

LECROSNIER & BABÉ, Paris.—J. A. Fost, "Nouveaux faits confirmant l'efficacité de l'électrolyse linéaire dans le traitement des rétrécissements de l'urètre." — A. Bordier, "Bibliothèque anthropologique." Vol. X. (8fr.) — Thomas, "Dictionnaire abrégé des sciences médicales." (7fr.) — G. Martin, "Étiologie de la myopie." (1fr.) — "L'Année médicale." Eleventh year. (4fr.) Vols. 1 to X. (16fr.) — L. de Wecker and J. Masselon, "Manuel d'ophthalmologie." (29 fr.)

HENRY OLLIER, Paris.—A. Cabanès, "De l'emploi de l'Hydrastis canadensis en médecine."

SAGNOL PÈRE, Paris.—J. Sagnol, "L'Égalité des sexes."

CHARLES SCHUCHARDT, Geneva.—P. Glatz, "Des dyspepsies avec suppression de la sécrétion du suc gastrique et plus particulièrement de la dyspepsie neurasthénique."

BERGMANN, Wiesbaden.—O. Leichtenstern, "Zur Pathologie des Ileus."

BREITKOPF & HÄRTEL, Leipzig.—A. P. J. Dose, "Zur Kenntniss der Gesundheitsverhältnisse des Marschlandes." — Heinrich Fritsch, "Sechzig Fälle von Laparotomymotomie." "Volkman's Sammlung," No. 339. (0.75M.) — Leopold Landau, "Diagnose und Therapie des Gebärmutterkrebses." "Volkman's Sammlung," 338. (0.75M.)

HERMANN COSTENOBLE, Jena.—H. Hirschberg, "Der Zucker als Nahrungs- und Heilmittel."

ENKE, Stuttgart.—Rafaël Coën, "Das Stotterübel." — P. Müller, "Handbuch der Geburtshilfe." Vol. III.

FISCHER, Berlin.—Eugeu Hahn, "Behandlung des Genu valgum und varum." (0.60M.) — Arthur Hartmann, "Die Krankheiten des Ohres." 4th ed.

GUSTAV FOCK, Leipzig.—Karl Gumpertz, "Zur Kenntniss des Lippenkarzinoms." (1M.)

HEUSER, Neuwied.—W. Brügelmann, "Ueber den Hypnotismus." (0.75M.) — Eugen Grätzer, "Medizinische Übungsbücher." I. "Krankheitstypen der inneren Medizin." (2.40M.)

HIRSCHWALD, Berlin.—Oskar Israel, "Praktikum der pathologischen Histologie."

MORITZ PERLES, Vienna.—T. Ki t, "Bakteriologische und pathologisch-histologische Uebungen für Thierärzte." (7M.)

SCHUMACHER, Berlin.—C. Posner, "Ueber Propeptonurie. Zugleich ein Beitrag zur Chemie des Samens." — E. Senger, "Ueber die Einwirkungen unserer Wundmittel auf den menschlichen Organismus und über ihre Leistungsfähigkeit."

J. SPRINGER, Berlin.—S. Rosenberg, "Ueber die Wirkung des Pernbalsams auf die idiopathischen Leukoplakien und sonstigen Epitheltrübungen der Mundschleimhaut."

G. THIENNE, Leipzig.—W. D. Miller, "Die Mikroorganismen der Mundhöhle." (18fr.)

URBAN & SCHWARZENBERG, Vienna.—San-Rat Gijurkovechky, "Pathologie und Therapie der männlichen Impotenz." — Julius Hoche-negg, "Jahresbericht der chirurgischen Klinik des Hofraths Prof. Albert." — R. von Jaksch, "Klinische Diagnostik." 2d edit. — H. Eichhorst, "Handbuch der speziellen Pathologie und Therapie für praktische Aerzte und Studierende." Vol. I. "Krankheiten des Cirkulations- und Respirations-Apparates." 4th edit. (2M.)

F. C. W. VOGEL, Leipsic.—F. A. Hoffmann, "Vorlesungen über allgemeine Therapie." 2d edit. (10M.)

K. J. WEYSS, Berne.—Theodor Kocher, "Vorkommen und Vertheilung des Kropfes in Kanton Bern." (1.60M.)

M. ARMANNI, Rome.—F. Cerasi, "L'acido pierico sugli eezemi impetiginoidi."

BIZZONI, Pavia.—B. Vittorio, "Sulla sensibilità della periferia della retina per la luce e per gli colori in occhi normali ed in alcuni casi patologici."

FRATELLI CENTENARI, Rome.—P. Canalis and E. di Mattei, "Contribuzione alla studia della influenza della putrefazione sui germi del colera e del tifo."

G. CIVELLI, Milan.—Pietro Canalis, "Sulla disenzefazione dei carri."

FERRARI, Venice.—V. Tecchio, "La vena d'oro nel quadriennio 1884-88."

LE MONNIER, Florence.—G. Palichi, "Il bacillo dello scheurlen e un saprofito della pella."

A. Tocco & Co., Naples.—A. Zuccarelli, "Inversione congenita dell'istinto sessuale in due donne."

E. CUESTA, Madrid.—Vinals y Torrero, "Programa de obstetricia práctica."

FOMENTO, Mexico.—S. M. Pereira, "Cartilla de hygiène para disminuir la mortalidad en los niños."

G. JUSTE, Madrid.—P. Gomez de la Mata, "Terapéutica moderna de la tisis pulmonar; estudio y descripción de los tratamientos recomendados en los últimos años."

BOOKS AND PAMPHLETS RECEIVED.

The Honors of the Empire State in the War of the Rebellion. By Thomas S. Townsend, Compiler of the "Library of National Records." New York: A. Lovell & Co., 1889. Pp. vi-11 to 416. [Price, \$2.50.]

Foods for the Fat: a Treatise on Corpulency and a Dietary for its Cure. By Nathaniel Edward Davies, Member of the Royal College of Surgeons, England. American Edition. Edited by Charles W. Greene, A. M., M. D. Philadelphia: J. B. Lippincott Company, 1889. Pp. vii-9 to 138. [Price, 75 cents.]

Annual Report of the Health Department of the City and County of San Francisco. For the Fiscal Year ending June 30, 1889.

Report of the Committee on Dental Practice. By M. L. Rhein, M. D., D. D. S., New York. [Reprinted from the "Dental Review."]

Chloride of Methyl. By M. L. Rhein, M. D., D. D. S., New York. [Reprinted from the "Dental Review."]

Enteralgia and Chronic Peritonitis. By A. Jacobi, of New York. [Reprinted from the "Transactions of the Medical Society of Virginia."]

Manual of Drill of the Ambulance Detachment. For the Provisional Use of the Hospital Corps and Company Bearers of the United States Army. By William D. Dietz, Captain and Assistant Surgeon, U. S. Army.

On the Treatment of the So-called Perityphlitic Abscess. By Robert F. Weir, M. D., Surgeon to the New York Hospital, etc. [Reprinted from the "Transactions of the New York State Medical Society."]

Some of the Limitations of Medicine. By Stephen S. Burt, M. D., Professor of Clinical Medicine and Physical Diagnosis, New York Post-graduate Medical School and Hospital. [Reprinted from the "Popular Science Monthly."]

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Egypt as a Winter Resort. By F. M. Sandwith, F. R. G. S., formerly Vice-Director of the Sanitary Department of Egypt. London: Kegan Paul, Trench, & Co., 1889. Pp. vi-153. [Price, 3s. 6d.]

Description of a Case of Embolism of the Left Central Retinal Artery. By Charles A. Oliver, M. D., of Philadelphia. [Reprinted from the "Transactions of the American Ophthalmological Society."]

A Treatise on Diseases of the Nose and Throat, in Two Volumes. By Francke Huntington Bosworth, A. M., M. D., Professor of Diseases of the Throat in Bellevue Hospital Medical College, New York, etc. Volume One. Diseases of the Nose and Naso-pharynx. With 4 Colored Plates and 182 Woodcuts. New York: William Wood & Company, 1889. Pp. xviii-3 to 670.

Miscellany.

Sore Nipples.—Dr. J. Elliott Langstaff, of Brooklyn, writes to us as follows: "If the following sentence, 'a sore nipple causes great pain when the child nurses,' which occurs in a very valuable 'System of Obstetrics,' were reversed, it would approach my experience with this important disease. I have found that great pain when the child nurses is generally followed by inflammation, excoriation, fissure, and sometimes mastitis. This pain, which is the first symptom of sore nipple, is caused by the sudden tension on the lactiferous ducts produced by the child each time it begins to nurse. Until the nipple is elongated sufficiently to fill the child's mouth and allow it to swallow without losing its hold, there is a constant jerking, with friction between the tongue and nipple. Acting on this theory, I have directed the mother or nurse to manipulate the nipple and areola between the thumb and two fingers, using vaseline and drawing gently outward for about a minute. The child is then put to the breast and nurses quietly, saving the mother that agonizing pain which is generally experienced in the case of a short nipple. I have yet to hear of a case where pain has not been relieved by this method, and I have seen deep fissures heal in a few days after this relief from pain. If mothers were treated for retracted nipple immediately after each confinement, there would be very few cases of sore nipple, and as long as the women of the present day will not recognize the evil effects of the corset, there will exist this condition of short nipple."

The North Texas Medical Association will meet in Gainesville on Tuesday, Wednesday, and Thursday, December 10th, 11th, and 12th, under the presidency of Dr. J. T. Wilson, of Sherman. The programme includes the following titles:

"Exophthalmic Goitre," by Dr. T. M. Taylor, of Sherman; "Valvular Lesions of the Heart," by Dr. M. C. McBride, of Lebanon; "Acute Articular Rheumatism," by Dr. J. D. Bedford, of Honey Grove; "Puerperal Fever," by Dr. O. H. Caldwell, of Dodds; "The Diagnosis and Treatment of Pelvic Cellulitis," by Dr. J. E. Gilreest, of Gainesville; "The Most Desirable Position for a Woman in Labor," by Dr. Alonzo Sims, of McKinney; "Traumatic Cataract," by Dr. R. H. Clifton, of Dallas; "The Indications in the Surgery of the Larynx and Trachea," by Dr. E. W. Rush, of Paris; "Surgical Cases, including two Cases of Laparotomy," by Dr. J. M. Inge, of Denton; "A New Artificial Drum Membrane," by Dr. H. N. Spencer, of St. Louis; "Herpes Progenitalis," by Dr. G. Frank Lydston, of Chicago, Ill.; "Extirpation of the Ileo-caecal Junction," by Dr. J. F. Hooks, of Paris; and "Cerebro-spinal Meningitis," by Dr. S. D. Moore, of Van Alstyne.

ANSWERS TO CORRESPONDENTS.

No. 299.—By evaporation on a water-bath.

No. 300.—1. We have not been able to ascertain. 2. Registration of the diploma at the County Clerk's office.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

THE CARTWRIGHT LECTURES

ON

VITAL AND MEDICAL STATISTICS.

DELIVERED BEFORE THE ALUMNI ASSOCIATION OF THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK,

November 14, 20, and 22, 1889.

BY JOHN S. BILLINGS, M. D., LL. D., D. C. L.,
U. S. ARMY.

LECTURE II (ABSTRACT).

THE term "expectation of life" is used by different writers in different senses, and hence has often given rise to confusion and misunderstanding. It should be used only in the sense of the mean after-lifetime—that is, the average number of years which persons at any given age in a given place may expect to live. In a stationary population, where there is no migration, and where the births are exactly equal in number to the deaths, the expectation of life at any age would be found by dividing the sum of the number of years which the whole population lived after that age by the number actually living at that age.

The term "expectation of life" is often confused with the "probable duration of life," which is the age at which a certain number of new-born children will be reduced one half, so that for any one of these children it is an equal chance as to whether it will die before or after that age. The difference between the probable duration of life and the expectation of life may be understood from the following example: Suppose that of 100 children born, 30 live one year, 20 live five years, 30 live forty years, and 20 live sixty years. Then the probable duration of life is five years, because at the end of five years just one half of these children will be dead, so that at the beginning it is an even chance for any one child as to whether it will die before or after the age of five years; but the expectation of life of any one of these children is 25.3 years, because these 100 children will in all live 25,300 years of life. In like manner, if ten of these children were to die at the end of every five years, the probable duration of life would be 25 years, and the expectation of life would be 27.5.

Another phrase sometimes used in vital statistics is "specific intensity of life." This is the quotient of the dividend of the number of persons living at any age by the number dying at that age—that is $\frac{Px}{Dx}$, being the reverse of the ordinary mortality ratio.

The chief source of error in an approximate life table, constructed directly from the census figures and a registration of deaths without correction or adjustment, is due to the fact that there is a very considerable error in the number given of the living population in the first six or seven years of life. Usually the census figures show that the number of children two years old is greater than the number one year old, and that the number four years old is greater than the number two years old, owing to a tendency

to erroneously report a child as being older than it is. If we undertake to adjust or correct these figures so as to truly represent the number living at each year, we usually have to make some assumptions as to the law governing the mortality, or as to what is sometimes called the law of life. This expression, the law of life, refers to the hypothesis that variations in mortality at successive ages take place in a regular succession which may be geometrically represented by a curve, and that, therefore, if we know the mortality at certain ages in a given community, we can, if we know this curve and if the number of observations were sufficient, deduce the mortality at other ages. Numerous formulæ have been proposed for this purpose, from that of De Moivre, in 1727, which is $Y = 86 - x$ (x being the age and Y the corresponding number of the living), to the latest and most generally accepted formula of Gompertz, as modified by Mr. Makeham. This last is based on the assumption that a person's power of resisting death decreases as his years increase, so that at the end of infinitely small periods of time he loses infinitely small portions of his remaining power to resist destruction, death being considered as the consequence of two generally coexisting causes—the one a progressive, necessary deterioration; the other, chance.

Calculations and corrections based on such formulæ as these give interesting results and are useful to life insurance work, but they are unnecessary for the purposes of the sanitary statistician. Even the fundamental hypothesis upon which Gompertz's law is based—that the proportion of deaths at a given age is constant—is always untrue for any given age, as the prevalence of infectious and contagious diseases of various kinds, and of various lethality, varies with different years, and for this reason it is desirable to have the records of deaths for a considerable period of time, at least three years, and better ten to twenty years, in order to correct these variations.

The most useful life tables for sanitary purposes are those which relate to certain circumscribed localities, such as a single city, or even a single ward of a city; but for scientific and medical purposes the most useful are those which relate to particular classes of people, particular occupations, etc. There is a special difficulty in preparing an accurate life table for a city, due to the effect of migration into and out of the city from and to the surrounding country, which disturbs very much the rates of death at different ages. The mortality in a great city is almost always reported as less than that which the actually existing causes of death and disease tend to produce, because domestic servants, shop girls, and others who have come from the country, go back to their rural homes when their health begins to fail after a year or two of city life, and there die. This is especially the case in regard to deaths from consumption and diseases of that class. The groups of ages which are thus specially affected are those between fifteen and twenty-five years, and therefore the mortality at this group of ages in the large cities as calculated from the number of deaths is too small to properly represent the causes of death acting on the population at those ages. On the other hand, the mortality at the same ages in the rural

districts near the city will be correspondingly unduly increased.

The data necessary for the construction of life tables are comparatively rarely available for the purposes of the sanitarian. Hence, while admitting that these furnish the only true measure of public health, registrars of vital statistics and sanitarians have sought for other standards for such measurement, the data for which could be more readily obtained and more easily applied. Especially has the search been made for some means of measuring sanitary conditions and progress from the data furnished by deaths alone without reference to population. One of the most common of these is the use of the period of infancy from nothing to five years, by comparing the number of deaths at this period with the total number of deaths. It is very certain that the period of infancy gives the most sensitive test of sanitary conditions, but the comparison must be made, not with the total number of deaths at all ages, but with the number of the living population furnishing such deaths.

In Europe it is more common to confine the calculation to children under one year of age, and these are much more valuable there than they would be in this country, because they have there a much more complete registration of births, and therefore the relation between the number of infants born and dying within the first year of life can be ascertained with an exactness which is quite out of the question in this country.

The test of sanitary condition which is most generally employed in this country is the proportion of the number of deaths which occur in children under five years of age to the whole number of deaths reported. This does fairly well in computing the rates of the same city, in which it may be presumed that the general ratio of age distribution is nearly uniform at different times, but it is a very fallacious method of comparing rates of different cities or localities. For example, during the last census year the ratio of deaths under five years per 1,000 of total deaths was, in Alabama, 475.9 for males; in California, 250; but in Alabama the proportion of male children under five years to the total population is 17.5 per cent., while in California it is only 9.1, or but little over half the Alabama ratio, and hence the true rate is actually higher in California than it is in Alabama, although the figures would indicate the reverse.

Another test which has been proposed is that of the mean age at death, which is the quotient of the sum of the ages of different individuals at death divided by the total number of deaths. This is only useful in comparing the conditions of two populations when the age and sex constitutions of these populations are the same. It is out of the question to apply the test to different occupations—as, for example, to compare the mean age at death of major-generals with that of second lieutenants. The chief use of this test is in its application to different causes of death, but even for this purpose the death-rate in relation to population is much better.

A considerable part of the errors to which one is liable in comparing the mean age of different occupations at death may be avoided by excluding from the computation all deaths of children under five years of age.

Although the expectation of life, or mean after-lifetime, is the standard of comparison almost universally accepted by statisticians, it is, in some respects, not a very satisfactory one, since it is often misunderstood by the public, which is apt to use the word "mean" in the sense of usual or ordinary, that which occurs most frequently. But the ordinary lifetime, or, as Bertillon calls it, the *vie normal*, is a very different matter.

The great majority of the mortality statistics prior to the present century are necessarily incorrect and unreliable, because they are based, for the most part, on the data of deaths alone. The deaths can only be taken as a measure of probable duration of life for any community when the births and deaths are equal and there is no migration, a state of matters which must very rarely happen and be of very brief existence.

Among the many expedients which used to be employed for estimating population was that of multiplying the number of living in which one death was supposed to occur by the number of deaths. That is to say, by guessing at a factor which could only be ascertained by comparing the annual deaths with the number living. Take, for example, the estimates of the population in London made by Graunt, in 1662, on the basis of one death occurring out of every thirty-two living, which made the population to be 403,000. In 1683, Petty, taking the mortality to be one to thirty persons living, made the population to be 669,930.

It may, perhaps, be asked why it is, if the nature of the data which are required to make mortality statistics reliable and satisfactory is so well known, that more of them are not provided by the municipal and state officers charged with the registration of vital statistics. For example, New York city has a very perfect system of registration of deaths, which is in competent hands and is well executed. Why, then, has New York city published no separate mortality report since 1883; and why, in the reports which it has published, does it not give the data with minuteness of grouping, so that we might know the number of deaths at each age, of each sex, and of each race and occupation, in each ward, from each cause of death, instead of giving, as it gave in its last report, the number of deaths from each, of a few causes of death for each, of a few groups of ages, and separately for each sex, and for natives of the United States, natives of foreign countries and colored; to which is added a statement of the deaths from zymotic diseases in each ward?

In order to understand the answer to this, it is necessary to have a clear conception of the difference in cost of tabulation and publication, according to the mode of grouping of the data.

When we have to tabulate data in such a way that the individual items are to be distributed through a thousand columns or more, and each of these to be summed up for different localities, a vast amount of clerical labor is required. For distributing in a thousand spaces the various items assigned in each death certificate, if it be done by the old-fashioned system of tallying on a large sheet, an expert clerk will not be able to tally off more than a thousand records of death per day; so that for, say, thirty thousand

deaths, which is less than the average number of annual deaths in New York city for the last ten years, it would require the labor of a clerk thirty days to produce a single page table—about one per cent. of what is needed.

By the use of cards, chips, or slips, tallying machines, addin machines, and sorting boxes of various kinds, this labor may be much reduced. One of the latest methods of doing this is by the use of cards of a uniform size in which holes punched in certain parts of the card correspond to the various divisions of locality, time of death, sex, age, occupation, cause of death, marital condition, etc. These cards may then be passed through a machine which registers on a series of dials such combinations of the data as the dials may be adjusted for, by means of electrical connections established between a metal plate below and a series of metal rods above, wherever there is a hole in the card.

Death-rates, even when derived from complete and accurate data and compiled in the most satisfactory manner in the form of life tables, necessarily give only a very imperfect view of the prevalence of disease in a community, or of the relative amount of disability among the people, requiring extra labor by the productive class due to the recurrence of sickness. Many forms of disease which render life more or less of a burden, and some of which totally disable the individual from earning his subsistence, seldom or never appear in the registers as a cause of death, while even of those diseases which are reported as causes of a considerable proportion of deaths we can rarely at present indicate any definite or certain relation between the number of cases of the disease and the number of deaths reported. For example, it is well known to all practicing physicians that the mortality varies greatly in different epidemics of such diseases as scarlet fever, measles, small-pox, whooping-cough, yellow fever, etc., the variations appearing to depend principally upon the particular conditions of the environment as to temperature, moisture, winds, density of the population, etc., at the time of the outbreak, and also upon particular conditions of the specific virus or micro-organisms causing diseases of this kind.

Take, for example, the spread of yellow fever in Texas and along the Gulf coast during the year 1867. Here the specific cause of this disease appears to have entered the United States by two distinct routes, one coming from Vera Cruz, Mexico, and the other coming from the usual source, Havana. At that time the United States had a comparatively large number of troops along the southern border of the country, and hence we have a series of returns showing not merely the number of deaths, but also the number of cases of sickness from this disease occurring in a given population.

Now, in those places where the disease was of Mexican origin, the cases were more fatal than those of Cuban origin, "two out of every five cases of the former dying, while the mortality of the latter was only two out of seven. The ratio of deaths was 400 per 1,000 cases for the first of these groups, 284 per 1,000 for the second."*

For the great majority of diseases it is not possible to obtain statistics as to their prevalence among a general population. The only sources to which we can look for information of this kind are the records of the army and navy, of the police force in certain cities, of the employees of railroads, and of the members of certain societies having insurance against sickness. The records of the army and navy are especially valuable in this point of view, but they relate only to males of certain groups of ages and of a carefully selected class of population.

In the last United States Census an attempt was made to obtain on the schedules of the living population the number of those who, on the first day of June, 1880, were so sick or disabled as to be unable to pursue their ordinary occupations. This was the first attempt of the kind which has been made in this country, but similar attempts were made in two censuses in Ireland, in a census of the Australian Colonies, and in a census of Hungary.

Several attempts have been made to induce physicians to keep a record of all the cases which they treat, but with very little result. In 1857 the Metropolitan Association of Health Officers in London carried out a systematic registration of all cases of sickness which received attention at the public expense—as in hospitals, dispensaries, almshouses, etc. About one half of the hospitals and dispensaries in the district contributed information, but the enterprise broke down before the end of the second year; and, while results gave some interesting indications for the time as to the prevalence and progress of certain forms of epidemic disease, the records have very little statistical value, as they have no definite relation to the numbers of the population furnishing the cases of sickness.

It is very improbable that anything like complete returns of sickness will ever be obtained for any large body of the civil population. Such registration will always be confined to infectious and spreading diseases; in other words, those which are known or supposed to be preventable. In order to make a registration of this kind of any great practical value, it must be continuous and compulsory. The plan of endeavoring to get the medical men of a locality to voluntarily contribute this information, even when accompanied by the offer of the payment of a fee, has produced partial and incomplete results, which become more and more incomplete as time goes on and the first enthusiasm in favor of the new plan dies away.

On the part of some members of the medical profession, both in Great Britain and in this country, strong objections are urged to compulsory notification of disease, and especially to that form which requires the doctor to furnish such notification direct to the sanitary authorities. It is urged that such notification is a violation of professional secrecy, that it leads to concealment of cases of such disease and the refraining from calling in a medical attendant, and that it tends to throw the treatment of such cases into the hands of a lower class of practitioners, who are willing to run the risks of violation of the law, or even to make false returns for the sake of securing an increased practice. There is, however, little difficulty in keeping the information furnished strictly confidential, provided the health officer is a man of

* War Department, Surgeon-General's Office, Washington, 1886, Circular No. 1, page 18.

tact and discretion, and provided also that the press does not insist upon being too inquisitive with regard to matters of this kind.

Any system of compulsory notification, however, which has to be continuously successful involves two things:

First, that the health officer shall not be in any way engaged in or connected with private practice, so as to do away with all reluctance on the part of general practitioners reporting their private cases.

The second is that, to obtain any benefit from notification, special hospital accommodations for such forms of diseases as are reported must be provided by the community, and there must be a power of compulsory removal of patients to such hospitals in certain cases.

Undoubtedly, valuable statistical data might be obtained by the simple notification alone; but the desire to obtain statistical information will never be accepted as a sufficient ground for legislation requiring compulsory notification.

We hear very much in recent years of the proportion of deaths from zymotic diseases as a test of the salubrity or sanitary condition of a place; but, as there is no general agreement as to what is and what is not a zymotic disease, and as the term rests on a theory of causation of disease which is now definitely abandoned, it should no longer be made use of. It is much better to select the mortality from certain forms of disease, and specify these in order that we may know exactly what we are talking about, and be sure that the matters compared between two localities are the same. English health officers often use the term "seven principal zymotic diseases," by which they mean small-pox, measles, scarlet fever, diphtheria, whooping-cough, typhus fever, and enteric fever. If this is the selection, it is not a good one, for it omits the diarrhœal diseases. Forty years ago, near the commencement of the speculations of Dr. Farr and Mr. Simon as to the causation of disease, nearly all of the contagious diseases were grouped together as zymotic diseases, and were supposed to be more or less connected with filth. At present we know that the cleanliness of the surroundings has little or nothing to do with the prevalence of small-pox, measles, scarlet fever, or whooping-cough; so that these, which are typical zymotic diseases, are of very little interest in connection with the question as to local causes of disease in a place connected with uncleanness and to be remedied by sanitary effort.

Their relative prevalence and the mortality due to them is of interest in a totally different connection, and their separation involves an entirely different field of sanitary work. Such diseases as phthisis, diphtheria, and the various forms of diarrhœal disease, including cholera infantum or the summer diarrhœa of children, of England, are of especial interest as regards the field of local sanitary work in relation to sewerage, drainage, and cleanliness.

The influence of habitation upon death-rates, and on the prevalence of certain forms of disease, is indicated by statistics given by Dr. Korosi for the city of Budapest, where the deaths are reported with the following classification, viz.:

1. Persons in a habitation where at most two persons dwell in the same room.

2. Persons dwelling where from two to five persons dwell in one room.

3. Where there are from five to ten in a room.

4. Where there are more than ten in a room.

Comparisons thus made indicate that contagious diseases, with the exception of scarlatina and typhus, are more frequent and more fatal in the crowded houses, and that the same is true of congenital debility and diarrhœa, while tuberculosis and pneumonia do not seem to be specially influenced by this cause (?!). As the figures of deaths in these categories are not comparable with those of the living population, the results have not much value.*

What has been the influence of modern civilization upon the average duration of human life, upon rate of population, upon the average health and vitality of the races which it has affected? The present population of the world is between 1,500,000,000 and 1,600,000,000, of which there are in Europe over 350,000,000, and of European stock in other countries 100,000,000; in all, say, 450,000,000 as against 150,000,000 in 1788. (See Giffen, "Jubilee Volume of Statistics," 1885, p. 99.)

Evidently the birth and death rates now prevailing in Europe and the United States can not have long continued, for, if we suppose a population to double itself only once in a century, 1,000,000 of people living twelve hundred years ago would have developed into a population of over 4,000,000,000 by this time.

What, then, is the difference between the expectation of life in New York at the present day and that in European cities one, three, five, ten, or twenty centuries ago? This question has been asked in various shapes many times, and many attempts have been made to answer it, the general conclusion being that there has been a very great increase in the average longevity of man in civilized countries, not only within the last thousand years, but within the last century. Notwithstanding, it must be confessed that the statistical records bearing on this point are very incomplete, vague, and unsatisfactory, and that it is only for the last forty or fifty years that we can speak with anything like scientific precision as to the amount of progress made.

So far as what is termed potential longevity—that is to say, the maximum duration of life possible in an individual of the race—is concerned, there is no evidence that this has changed for at least two thousand years, being for man generally taken as a hundred years. You will remember the scriptural declaration that the years of a man "are three score years and ten, and if by reason of strength they be four score years, yet is their strength labor and sorrow"; notwithstanding, there are sufficient records to prove that even in those days the potential longevity of man was as great as it is at present.

But when we come to the average longevity and expectation of life at birth, there is sufficient evidence to indicate that it has increased; but whether this is due to the preservation of more infant lives for a few years, although they may still die before the productive period is reached, or to

* Korosi, "Influence des habitations sur les causes des décès," etc., Paris, 1877.

an increase of the number of those who live into and share the working period of life, is still uncertain, for this question can only be settled by comparative life tables, and I have already explained that we have no reliable life tables that are much over fifty years old.

The most important contributions to our knowledge of the increase in the duration of life in recent years is contained in a paper on the decline in the English death-rate, by Noel Humphreys, published in the "Journal of the Statistical Society" in 1883; and in a report by Dr. William Ogle in a supplement to the "Forty-fifth Annual Report of the Registrar-General of England," published in 1885.

The conclusions, as based upon English life tables, comparing periods from 1838 to 1854, and from 1871 to 1880, are as follows:

The mean after-lifetime of a male at birth was for the first period 35·91 years, for the second 41·35, showing an average gain of nearly a year and a half. The mean after-lifetime continues longer in the second period than in the first for each year of life until the nineteenth. At the close of the nineteenth year the expectation of life was exactly the same in each period—viz., 40·17 years. From that time onward the after-lifetime is shorter in the recent period than in the older one; that is to say, the individual male in England lives on an average a shorter time after he is nineteen years old than he did forty years ago; but the number of males out of equal numbers at the start who survive to live these shorter lives is very much greater than it was formerly, so that the aggregate life of the whole is considerably increased. The gain is greater in females than in males. Thus, in the first period the expectation of life in females was 41·85, while in the second period it was 44·62, being a gain of 2·77 years on an average for each female. The after-lifetime continues longer in the new period down to the completion of the forty-fifth year, when the expectation of life becomes the same—viz., 24·06.

The earliest attempt to give vital statistics for the United States is probably a paper by Edward Wigglesworth, published in the "Memoirs of the American Academy of Arts and Sciences," 1793, vol. ii, page 131, entitled "A Table showing the Probability of the Duration, the Decrement, and the Expectation of Life, in the States of Massachusetts and New Hampshire, formed from Sixty-two Bills of Mortality on the Files of the American Academy of Arts and Sciences in the year 1789." The whole number of deaths reported on these bills was four thousand eight hundred and ninety-three. He had no data of population, but the reports indicated that the births in the locality sending the bills were twice as many as the deaths. As his calculations are based solely on the deaths alone at certain ages, the conclusions are evidently entirely unreliable; but, such as they are, they are as follows:

The expectation of life at birth was 28·15 years; at five years, 40·87; at ten, 39·23; at fifteen, 36·16; at twenty, 34·21.

By another calculation he finds that the expectation at birth was 35·47, and at five years of age 48·46.

Another paper is by J. E. Worcester, printed in the "Memoirs of the American Academy of Arts and Sciences,"

Philadelphia, 1833, vol. i, new series, page 1, and entitled: "Remarks on Longevity and the Expectation of Life in the United States, relating more particularly to the State of New Hampshire." Taking the bills of mortality of thirty-two townships in New Hampshire for an average length of time of twenty-one years, he found that the death-rate was 1 in 83, or 12·04 in 1,000. He wisely remarks that the ratio is so small as to excite suspicion concerning the accuracy of the bills.

You are all, no doubt, familiar with what is known as the Malthusian theory, which is, essentially, that population is limited by the means of subsistence available, that population increases in a geometrical proportion, while the means of subsistence do not increase in a faster ratio than arithmetical progression; that, therefore, the growth of population is checked by want of means of subsistence, and, therefore, that the increase of mankind may be considered as the chief source of misery, which misery, together with moral restraint to a limited extent, and vice, check the superior growth of population, keeping it at a level with the means of subsistence.

If this doctrine be applied to the lower animals or to an extremely savage and ignorant set of men, it is very nearly correct; for in this case the term "means of subsistence" applies almost exclusively to the natural produce of the earth. As soon, however, as man applies his intelligence to the increase of the means of subsistence by improvements in agriculture, by manufactures, etc., it is no longer true that the means of subsistence increase in an arithmetical proportion. They may increase, and for the last fifty years have, throughout civilized regions of the world, actually increased in a ratio more rapid than geometrical proportion and more rapid than the increase of population; and it is therefore substantially true that "the character of every race of men is the real limit to its numbers in the world, if allowance be made for accidents of position and time."*

The uneducated and unskilled laboring classes, who are without capital, when gathered together in large masses, tend constantly to illustrate the theory of Malthus by increasing faster than they can provide means of subsistence for themselves and their families.

But this tendency is opposed by the advance in knowledge, increase in energy, and improvement in inventions in the educated classes, who, although it may be said that they are acting only from selfish interests, are, nevertheless, led by those interests to expand the fields of agriculture, manufactures, and commerce, and thus to both increase the means of subsistence and to lessen the price thereof.

Under favorable conditions a population is capable of doubling its number every twenty-five years. In the United States, between the years 1790 and 1860, the population doubled itself about once in twenty-three years and a half. But a portion of this increase was due to immigration.

Whether in the future a systematic attempt to maintain an equilibrium between subsistence and population will become a practical problem of national policy is at present a purely theoretical speculation, for it is very easy to show, as

* Farr, "Vital Statistics," London, 1885, p. 15.

has been done by Mr. Atkinson (see papers by Atkinson in "Scribner"), that the means of subsistence at present at our command can easily be quadrupled, as the increase of the population occurs to both require and produce such increase.

One of the most interesting and important questions in vital statistics in this country is that relating to the relative increase in the white and colored population in the Southern States, and the influence which has been and will be exerted upon this by the abolition of slavery. On the one hand it is claimed that the large increase in the colored population between 1870 and 1880 indicates that in fifty, or at most a hundred, years more it will greatly predominate.* On the other hand, it is affirmed that the greater increase of the colored population is apparent rather than real.

We have little information of value relative to the vital statistics of the colored population in the South previous to the abolition of slavery. The only two Southern States having registration laws which were to any extent enforced were Kentucky and South Carolina. The Kentucky reports relating to the registry and returns of births, marriages, and deaths are eight in number, commencing January 1, 1852, and extending to December 31, 1859, the last report being printed in the early part of 1861. The South Carolina annual reports of registration of births, deaths, and marriages begin with the year 1853 and end with the year 1859. In neither State was the registration of either births or deaths in any year sufficiently complete to permit of accurate comparisons with the number of living population, either for the whites or blacks.

The conclusions drawn by the registrars may be summed up in the statement that the birth-rate of the slaves was much greater than that of the whites in South Carolina, while the difference was not marked in Kentucky; that in both States the death-rate of the negro was decidedly greater than that of the whites, especially in infancy, and that the average age at death was decidedly higher in the whites.

The average mortality in a population of a little over 43,000,000 whites was recorded as 14.74 per 1,000, while in a population of 6,752,000 colored the recorded mortality was 17.28 per 1,000. Is it known that each of these recorded death-rates is much lower than the actual one, owing to failure to record the whole number of deaths occurring during the census year; but it is also known that the proportion of failures to record was decidedly greater among the colored than among the whites, and hence the difference between the death-rates of the two races is even greater than that indicated by these figures.

How far is this excessive mortality in the colored population due to race characteristics? It is due to peculiar susceptibility on the part of the negro to certain distinctive forms of disease, or to his having less vital force and capacity to resist disease and death? Undoubtedly the great mass of the colored population is poor and ignorant, lives in the dampest and dirtiest parts of cities, and in the midst

of unhealthy surroundings, and is in other respects unusually exposed to well-recognized causes of disease.

The statistics of 1880 show that the colored race is peculiarly liable to fatal results from certain forms of disease, especially consumption, pneumonia, diarrhœal diseases, affections of pregnancy, scrofula, and venereal diseases; and that, on the other hand, it is much less liable than the white race to fatal results from cancer, diphtheria, diseases of the nervous system, scarlet fever, and suicide.

Notwithstanding the interest and importance of the question, we have at present no sufficient data to determine whether the negro, under the same circumstances as to poverty, etc., is or is not more prolific or short-lived than the whites, and absolutely no data of any value for determining the relative fertility and mortality of the mixed bloods, including mulattoes, quadroons, octoroons, etc. An effort will be made in the coming census to supply this deficiency as far as possible. In the enumeration of the population those of mixed blood will be recorded separate from the pure whites and the pure blacks, and an effort will be made to obtain corresponding records of deaths in order to determine the death-rates of these mixed bloods. An effort will also be made to determine the birth and death rates of certain classes of poor and ignorant whites, such as the tenement-house population in our Northern cities, as distinguished from those of the mass of the white population, which will give us a better means of comparison of the mortality of the two races under comparatively similar circumstances than we now have.

In studying the causes of disease and death in communities a very important point to be considered is the relative poverty, ease, or luxury in which different parts of the population live, or the sickness and death-rates of so-called social classes.

That extreme poverty, producing inability to obtain the amount of food, clothing, and shelter requisite to preserve health, is a direct cause of high death-rates, especially in northern climates, is known to all; but the extent to which this factor of want influences the death-rates in different countries or communities is by no means easy to determine, and thus far we have, for the most part, only data bearing indirectly on this subject. For the provident and presumably well-to-do classes we have the statistics of life-insurance companies; but these are for selected lives, which fact tends to give a low death-rate during the early years of the policy-holders, while, on the other hand, the tendency to cease paying annual dues and to give up the insurance is greater in those who are well and strong than in those who have reason to suspect that they are diseased, so that the death-rates in the greater ages are higher in the insured than in those not insured. We can also draw some inferences from the vital statistics of occupations, from tenement-house statistics, etc.; but it is very difficult to distinguish between effects of density of population, occupation, race, intemperance, uncleanly habits, and actual want of the necessaries of life.

The tendency now is to accumulate the best and the worst of the race in cities. They draw to them the most enterprising, vigorous, and prudent, whose tendency is to late marriages and few children, and thus tend, after a time,

* See paper by E. W. Gilliam, "Popular Science Monthly," xxii, 433.

to lower the standard of the race. Where the tendency is to replace a feeble and lower race by a better one there is progress; where the tendency is the reverse there is decay. "The hope that by increased knowledge, charity, and co-operation, the feeble, sickly, and incompetent can be so cared for that they shall become strong and vigorous, is that held by most men of the present day, but there is nothing in the laws of heredity which gives any foundation for this hope."

"What is to be the outcome of this modern civilization? Its enemies are not without but within—not savage nations on its borders, but dwellers in its own cities. The general tone of modern European literature is pessimistic as to the future, filled with doubts and fears as to what the coming supreme democracy will do. In this country it is more hopeful, and looks forward to progress in improvement in the physical conditions of the race, though admitting the dangers and difficulties which this very physical improvement tends to produce." But whatever be the views of individual thinkers and writers, on one point all can agree, and that is as to the desirability of having at our command definite, positive information as to the character, amount, and set of currents of this stream of human life in different countries and localities. An important part of such knowledge is that which relates to the composition of and changes in the population in different countries, which is the special field of vital statistics.

Original Communications.

THE BOTE.

DESCRIPTION OF A PECULIAR SEXUAL PERVERSION
FOUND AMONG NORTH AMERICAN INDIANS.

BY A. B. HOLDER, M. D.,
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DESIRING absolutely to avoid discussion of the existence or non-existence of the anomaly classically known as hermaphroditism, in which, in one individual, are found more or less developed the sexual organs of both male and female, I have chosen the word in the heading of this article to designate a class which exists as a class, so far as my knowledge goes, nowhere but among certain tribes of the American Indians.

The word *bō-tē'* I have chosen as being the most familiar to me and not likely to convey a wrong impression, since I shall be the first, perhaps, to translate into English and define it. It is the word used by the Absaroke Indians of Montana, and literally means "not man, not woman." A corresponding Tulalip word, used by Indians of Washington Territory, is "burdash," meaning "half man, half woman." As the Absaroke is an unwritten language, in the orthography of the word I have adopted the alphabet suggested by the Smithsonian Institution to secure uniform spelling of Indian words. These words are appropriate as descriptive of manners and practice, but are not, by the In-

dians themselves, intended to convey the idea of anomalous sexual conformation.

The practice of the bote among civilized races is not unknown to specialists, but no name suited to ears polite, even though professional, has been given it. The practice is to produce the sexual orgasm by taking the male organ of the active party in the lips of the bote, the bote probably experiencing the orgasm at the same time. Of the latter supposition I have not been able to satisfy myself, but I can in no other way account for the infatuation of the act.

Of all the many varieties of sexual perversion, this, it seems to me, is the most debased that could be conceived of.

In the Crow or Absaroke tribe, of which I have had medical charge for two years, there are at present five bote (in this dialect there is no plural form, the number being indicated by the qualifying words), and about this number has flourished for years past.

While in reports of physicians and others concerning various Indian tribes I find no mention of this class, and while in personal replies from physicians in charge of more than twenty agencies I have been able to get little positive evidence concerning them, yet I feel assured that the bote is to be found in nearly all tribes of Indians, of the Northwest at least.

From physicians I have obtained the following information:

Dr. Joseph B. Graham, of Lower Brulé Agency, Dakota, reports one "so-called hermaphrodite who affects woman's manner and dress, and it is said he lives and cohabits with a man occasionally, but more I have been unable to learn."

Dr. Best, of Fort Berthold, Dakota, informs me that there are among his Indians, Gros Ventres, Mandans, and Rees, "a few bucks who have the dress and manner of the squaws and who cohabit with other bucks," but in what manner or for what purpose he is unable to say.

Dr. C. K. Smith, of Klamath, Oregon, writes: "There is but one 'hermaphrodite' in this tribe. She (?) has lived with a number of different men who claim that they have performed the sexual act with her. She has also cohabited with white men. The Indians claim that she has a rudimentary penis and that she used to cohabit with females. She dresses as a female, but is masculine in voice, features, etc."

One of the bote accredited to the Absaroke tribe is a Sioux, and I can assert, on perfectly reliable testimony, that among the Lower Gros Ventres there is a larger number of them than in the Absaroke tribe. A bote, a description of whom will be introduced presently, told me that the tribes of his acquaintance living in the Northwest had bote as follows: Flatheads, four; Nez Percés, two; Gros Ventres, six; Sioux, five; Shoshonis, one. There seems a species of fellowship among them, and I have no reason to doubt the correctness of his statement.

The bote wears the "squaw" dress and leggins, parts the hair in the middle and braids it like a woman's, possesses or affects the voice and manner of a woman, and constantly associates with that sex as being of it. The voice, features, and form, however, never so far lose masculine qualities as to make it at all difficult to distinguish the bote from a

woman. One of them does "squaw" work, such as sweeping, scouring, dish-washing, etc., with such skill and good nature that he frequently finds employment among the white residents.

Usually the feminine dress and manner are assumed in childhood, but the art to which they subsequently devote themselves does not generally become a practice till toward puberty. One little fellow while in the Agency Boarding School was found frequently surreptitiously wearing female attire. He was punished, but finally escaped from school and became a bote, which vocation he has since followed.

One of the bote of my acquaintance is a splendidly formed fellow, of prepossessing face, in perfect health, active in movement, and happy in disposition. Desiring that my knowledge should be positive, I had this bote brought to my office, and, by offering a moneyed consideration, induced him to submit himself, though with considerable reluctance, to a thorough examination.

He is five feet eight inches high, weighs one hundred and fifty-eight pounds, and has a frank, intelligent face—being an Indian, of course beardless. He is thirty-three years of age and has worn woman's dress for twenty-eight years. His dress was the usual dress of the Indian female, consisting of four articles—a single dress or gown of half a dozen yards of cloth, made loose with wide sleeves, and skirt reaching to the ankles, the skirt and body of one piece, very much like the "Mother Hubbard" *negligée* worn by ladies; a beaded belt loosely confining this at the waist; stockings from Government annuity goods; and buckskin moccasins extending above the ankles. The hair, twenty-four or twenty-six inches long, was parted in the center and allowed to hang loose in two masses behind the shoulders. Since among the Sioux and some other tribes it is usual for men to wear their hair in this way, it is well to observe that in this tribe (Absaroke) the men usually wear the hair in long braids and always part it on the side and "roach" the front.

Removing his dress, I found his skin smooth and free from hair, there being absolutely none on the legs, arms, or breast, or in the armpits. This, however, is of no special significance, as all Indians with whom I am acquainted, male and female, are free from hair on these parts of the body. The mammæ were rudimentary, as usually found in the male.

Coming now to the more interesting parts, the sexual organs, I will state that when he removed his dress he threw his thighs together so as to completely conceal the organs, whether male or female; such a movement as I have frequently seen made by timid women under examination—a movement usually successful in the female, owing to the non-projecting character of the genitals and to the rotundity of the thighs, but not usually easy, for the reverse reasons, in the male. In this the bote—either from the conformation of the thighs, which had, really or to my fancy, the feminine rotundity, or from skill acquired by habit—succeeded completely.

When he was induced to separate his thighs, male organs came into view, in size perhaps not quite so large as the physique of the man would indicate, but in position and shape altogether normal. The penis, being flaccid, meas-

ured four inches and a half in length, three inches and a half in circumference. The testicles were of about the size of the shell of a small almond; the foreskin and glans were normal. On the pubes was a light growth of short hair, the usual amount found on the Indian male.

Before he would submit to the examination he had me promise that I would tell nothing to the authorities nor to any of his tribe. When I was done he asserted that no one had seen his genital organs from childhood till this examination. His constant associates are women, and I said to him, "You go swimming with women; how do you keep them from seeing your organs?" "Oh," he said, "I do this way," throwing his thighs together as he had done when he first removed his dress for examination, again completely concealing the penis and serotum, and under direct inspection in this position it would be impossible to declare his sex. He denied ever having had sexual intercourse with a female, and pointed as evidence to his penis and groins—"no sore, no sear"; by no means bad evidence in a tribe so universally venereal. Other Indians assert that this bote formerly occasionally had sexual intercourse with women. Such, however, is rare, perversion of the function depriving them of the normal passion for the female. They have, however, for this perverse gratification a passion equivalent to the normal. I have heard a bote *beg* a male Indian to submit to his caress.

The bote described above lived constantly two years as the female party to a marital partnership with a well-known male Indian. It is not, however, the usual habit of the bote to form a "partnership" with a single man. He is, like the female members of this tribe, ready to accommodate any male desiring his services.

In habits the bote very closely resembles a class described by Hippocrates as found in his day among the Scythians of Caucasus, and called by the Greeks *ἀναδριείς*, a word strikingly similar in meaning to bote. The *ἀναδριείς* are described as males who—indirectly, from excessive horseback riding, and directly, in the opinion of Hippocrates, from the cutting of certain veins near the ears—have been rendered impotent and, in the words of the "Father of Medicine," "assume the attire of women, declare that they have lost their virility, associate exclusively with women, follow like occupations, and have a like pitch and tone of voice." The credulous assertion of the writer that "near the ears there are veins which render impotent those in whom they are cut" should be kindly forgotten along with the numerous errors of this great observer. The origin and perpetuity of these *ἀναδριείς* is thus accounted for by Herodotus (Rawlinson's translation, "History of Herodotus," vol. i, p. 190): "When the Scythians were about leaving Syria and Palestine, which they had invaded, their rear guard pillaged the temple of Venus at Ascalon. The goddess was so enraged at the act of desecration that she caused the perpetrators to become like women, and further decreed that their posterity should be similarly affected."

Dr. William A. Hammond ("Impotence in the Male," p. 163 *et seq.*) describes with great minuteness two *mujerados* whom he found among the Pueblo Indians of New Mexico. These again closely resemble the bote in dress,

habit, and practice. "The Pueblo Indians," writes this author, "are in the habit of selecting some one male from among those living in a village and rendering him sexually impotent, reserving him at the same time for pederastic purposes. This person was called a *mujerado*, a corruption probably of the Spanish word *mujerigo*, which signifies feminine or womanish. There is no such word in Spanish as *mujerado*; but if there were, it would, according to the construction of the language, mean 'womaned,' or 'made like a woman.'" Of the use and manner of making the *mujerado*, Dr. Hammond writes: "A *mujerado* is an essential person in the saturnalia or orgies in which these Indians, like the ancient Greeks, Egyptians, and other nations, indulge. He is the chief passive agent in the pederastic ceremonies which form so important a part in the performances. . . . For the making of the *mujerado* one of the most virile men is selected and the act of masturbation is performed upon him many times every day; at the same time he is made to ride almost continually on horseback." From over-excitement comes abolition of the orgasm, the organs atrophy, the temperament changes, and he becomes assimilated with the female sex, perhaps at first with reluctance, but finally with entire complaisance and assent.

That the perversion of the bote is not due to excessive equitation is evident when it is known that the female dress is often assumed in childhood, and rarely at a later period than the age of puberty.

In the manner of making the *mujerado* and his importance in the traditional rites of the people among whom he is found, Dr. Hammond gives him a position of greater dignity than I can assign the bote, whose making I adjudge the work of his own perverted lust, and whose tolerance I attribute not to any respect in which he is held, but to the debased standard of the people among whom he lives.

There is, moreover, a difference in the method of the practice of their vocation. Pederasty is by no means unknown among the tribes of Indians where the bote is found, but the bote is less than any other a pederast. With him it is the oral and not the rectal cavity into which he admits the male organ.

It is interesting, however, to observe that Indian tribes vastly dissimilar in habits and as widely separated as the western half of the continent will allow possess each a class closely resembling and all markedly similar to the Scythian *ἀναδριεῖς* described centuries ago.

That the bote is a study of practical as well as scientific value to the surgeon is evident to one whose practice has brought him in contact with examples in the white race, not only of the *mujerado* but of his more disgusting cousin, the bote. With the former every specialist is familiar, and several cases are reported with graphic minuteness by Dr. Hammond in the little volume referred to above. Of the latter, a striking example was the case of an officer in the United States army, who was recently caught *in flagrante delicto*, the other party being an enlisted man, and allowed to resign from a Western post. He confessed the practice of the habit for years, showing that there is no bottom to the pit into which the sexual passion, perverted and debased, may sink a creature once he has become its slave.

TALIPES EQUINUS.

BY C. W. BARRIER, A. M., M. D.,
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CONCERNING this deformity certain fundamental principles are conceded by all, while other principles and methods are still *sub judice*. Of this latter class alone I propose to write. As F. R. Fisher, F. R. C. S., of London, in Ashhurst's "Encyclopædia of Surgery," treats of this subject comprehensively, and represents a larger class of writers and operators, I will show wherein my views differ from his teachings.

To reduce the deformity he directs two operations, as though it could not be done at one. The mechanical treatment after each of these operations he describes as requiring two or three months, making four or six months necessary to complete a reduction. I have found in my practice that a large majority, if not all these cases, may be successfully treated at one as well as at two operations, and the patient may be well and walking about in at least two or three months, the time he directs to continue the mechanical treatment after each of his operations. I have found one operation preferable for the following reasons: 1. The patient and the parents are not horrified by the thought of two operations and such a long treatment. In one case, which I treated at one operation, the parents had been deterred from the treatment till the child was sixteen years old by the thought of two operations. 2. The patient is not helpless and does not require the attention of the surgeon more than half so long. 3. There is not half the danger that some unforeseen contingency may prevent the cure. The child may become sick; an epidemic may prevail; accident, sickness, or death may befall the surgeon in six months. 4. Some parents are very fickle and may conclude that, as so little has been accomplished at the first operation, another would not be worth while. I have seen more than one treatment cut short in this way. 5. One part of the deformity can not be entirely reduced while the other exists. 6. The danger, if any—and who can say there is none from the use of chloroform?—is only half so great. 7. Last, but not least, I object to two operations, because I have not seen their necessity, and I have operated in several cases extreme deformity and of long duration.

A. W., aged sixteen, with paralytic talipes equino-varus from birth, had made application to various surgeons, who advised two operations and frightened the patient from the treatment. On the 18th of last January, assisted by the accomplished physician, Dr. W. W. Bloodworth, I operated, accomplishing the whole at once, consuming in the operation and dressing only six minutes. On the eighth day the deformity was completely reduced. In three months the boy was walking on the foot all over town. In five months he was put to work at a job which required him to be on his feet twelve hours each day. The foot is still straight, with no tendency to return to its old position, although not strengthened by a brace.

W. W., aged ten years, of this city, having complete equinus, with slight varus from birth and with great displacement of the tarsal bones, was operated upon by myself, assisted by the efficient Dr. E. W. Jenkins, the two operations being performed at once. On the seventh day the deformity was entirely re-

duced, and on the ninth day the boy stood with the heel flat on the sole-piece of the splint, and bore all the weight of his body on the deformed foot. On the eighteenth day I discovered that the boy had thrown his crutches away and was walking on the foot in its splint, and I was compelled to devise means to keep him off of it.

Our author's method of cutting the tendo Achillis is no less objectionable than the two operations. I will enumerate the dangers attending the operation by his method in his own words. He says: "The division of the tendon in a healthy body, or when performed on a dead subject, is a very simple operation; but in the case of paralytic equinus it is by no means so easy to divide the tendon deftly; in the paralyzed leg all the tissues are very much wasted, there is, consequently, very little subcutaneous fat, and the skin folds closely over the tendon, etc., . . . but it renders the subcutaneous division of the tendon much more difficult than it would be if the superficial tissues were less closely adjacent to the structure which has to be divided. The dangers which have to be avoided are: (1) making a second puncture of the skin on the opposite side of the leg on which the tenotome is entered; (2) increasing the size of the first puncture during the section of the tendon so as to produce a gaping wound; (3) and, lastly, cutting through the skin over the tendon after the division of the latter is complete; all these accidents have happened in practice." All this is true, but he fails to enumerate all the dangers. However, I will do so in his own words. "If the tendon has not been perfectly severed, (4) the knife has probably pierced its deeper fibers instead of passing under it; (5) or else it has not been carried far enough to the side opposite to that of puncture and some of the fibers of the tendon have been left undivided; in such case the knife must be re-entered and section made complete; and the same must be done if the small plantaris tendon has not been severed."

These dangers are real, not imaginary, and certainly they are enough to attend any one operation. It seems to me that they all arise from the point of entering the knife—viz.: on the side of the leg, passing it anteriorly to the tendon—and they are augmented by the operator having to keep the sharp point of the knife in contact with the inner surface of the skin in passing around the curve to reach all the points of the tendon; and after the last fibers are cut the whole of the back part of the skin is drawn with force over the edge of the blade. To those who will reflect, I submit the following method of operating, which I think removes all these dangers: The patient being placed in the recumbent position on a table, the operator stands at the patient's feet and elevates the limb at a right angle to the body, which places the tendo Achillis directly before the eyes of the operator. Enter the tenotome on the median line of and posterior to the tendon, with the back of the blade directly toward the os calcis. When the knife has passed through the skin, with the thumb of the left hand on the side of the tendon opposite the point where the blade is entering, press the skin toward the blade; this will enable you to pass the tenotome between the skin and tendon, until the point of the knife is opposite the anterior surface of the tendon. Then turn the edge of the knife to

the tendon, and replace the thumb of the left hand by that of the right hand, with the handle of the knife in the latter. Now you have only the tendon and one layer of the skin between the edge of the knife and the thumb. With a few even sweeps of the knife, the thumb pressing the tendon firmly against the blade, while the tendon is put on the stretch by forcibly extending the toes, you sever it; the thumb feels the knife approaching the skin and warns you when to go slowly; and the tendon, being on the stretch, gives way with a distinct jerk, by which you know the work is complete; and you have no fear of having to re-enter the knife to cut around in search of undivided fibers or plantaris tendon. There is no curve to pass around in cutting the tendon, the point of the knife is not all the while in contact with and probably cutting the skin through, and there is no danger of pulling the skin with force over the edge of the knife when the tendon gives way, as in this case the skin is not pulled toward the edge, but down the knife. If there are any dangers attending this method, I have neither conceived of nor encountered them. There may be some danger of cutting the posterior tibial artery, but this danger is not so great in this as in the former method, as the thumb may press the edge of the tendon nearest the place of puncture more firmly against the knife, and cause the inner anterior surface of the tendon, which is nearest the artery, to be the last severed, and, as soon as this is done, we feel the tendon give way and take the knife out without cutting the artery. By the other method there is great danger of cutting the artery in moving the knife around to find uncut fibers or plantaris. I have practiced this method so successfully that my assistant, though a skilled physician, failed to discover the puncture until it was pointed out to him, it was so small.

Our author directs the use of Scarpa's shoe, as though the deformity could not be reduced without it. Aside from the economy, I prefer not to use it. I take two pieces of white pine, three eighths of an inch thick, and fit one to the sole of the foot, the other to the back of the leg. I cut a hole in the piece extending up the leg for the heel to fit into. I join these immovably at the heel, tacking on pieces of leather at the angle from one piece to the other, to act as braces. I make the included angle a little less than a right angle. I pad this with cotton, on which I place the foot and leg after having performed both operations at once and covered the punctures with iodoform gauze; then I place another pad of cotton over the limb and apply a roller bandage firmly yet comfortably, controlling muscular spasm and protecting the parts from shock on moving the body. Over this I apply a Martin's elastic bandage around the instep and anterior part of the foot, just tight enough to keep the bandage from falling off. When thus applied it produces no pain, and exercises a gentle traction sufficient to gradually draw the sole of the foot to the sole-piece of the splint, and causes the foot and leg to take the position of the angle of the splint. The bandage will accomplish this in from five to ten days, and the patient will not so much as know that a force has been applied. After this, I leave off the elastic bandage and replace it with a second roller bandage, making the parts immovable with the foot well set and at rest till the tendon is fully developed.

But let us hear how it is with Scarpa's shoe. "The whole success," says our author, "of the mechanical treatment of the case depends upon the skill with which the instrument is applied and used, and from a want of appreciation of this fact an imperfect result very frequently follows; and it is quite remarkable how one can blunder in his first attempt to apply a Scarpa's shoe." Again, "for the first twenty-four hours the limb is merely kept resting in its original state of deformity; then the instrument is taken off and the leg is examined to see if too much pressure has been exercised at any one spot from over-tightening the straps." "If such a strain is put on the foot as to give rise to swelling or pain, the pressure must be removed immediately, as otherwise the skin may be excoriated by the tightened straps, and the only remedy will be to give up treatment until the abraded surface is again sound."

Now, after it has required our author, an experienced hand, four days to apply the instrument, and after he has run such a great risk of excoriating the skin and of having to give up the treatment, he goes on to give directions how the cog-wheel is to be turned on from day to day for two or three painful months to complete the reduction. But why do we get so much better results from the use of the elastic bandage than from that of Scarpa's shoe? 1. Instead of narrow, hard leather straps, I use a three-inch elastic bandage, which exercises equal force on all parts. 2. Instead of using a force with which "it is quite remarkable how one can blunder," I use a force that the mother, after a little instruction, can apply as well as or better than the surgeon, which I actually leave for her to do. 3. I commence traction immediately after the operation, before the foot is swollen and sore. He waits four days, leaving the foot in its original state of deformity. I control muscular spasm with a firm dressing. He leaves the limb in a flexible dressing three days and then allows it to rest in its original state of deformity the fourth, while in my treatment, if on the fourth day the foot is left unsupported and is allowed to drop back into its deformed position, it causes great pain. 4. I apply a continuous force almost infinitely small. He applies a violent force probably one second in twenty-four hours, one second being about the time required to turn the cog-wheel. Let us estimate how much more a given force can accomplish by acting continuously than it can by acting only one second in twenty-four hours. The formula in mechanics applicable to this case is: $rd = ft$, in which r represents the resistance to be overcome to complete the reduction, d represents the distance through which the heel has to be pulled down, f represents the force applied; in the one case it is the force applied to the cog-wheel, in the other it is the elasticity of the bandage; t represents the time each force is applied; in the one case it is one second in twenty-four hours, in the other it is 8,640 seconds in twenty-four hours. Now, to find what a given force applied by means of the cog-wheel will accomplish in a day, we have $f = rd$, as in this case $t = \text{one}$. In the case of the elastic bandage we have $f = \frac{dr}{8,640}$, as t in this case is 8,640. Hence, we see, to accomplish a given work with a cog-wheel in one day the force must be 8,640 times as great as that required by

the elastic bandage. This is not overdrawn, for we have supposed the child to be perfectly passive while the cog-wheel is turned on, which is impossible, as he can not control the muscular spasm, nor the contortions of the limb, when he knows the dreaded force is to be applied. Indeed, it is impossible to obtain this minimum force with the bandage; but, happily, the child can bear, when applied in this way, a much greater force, which accomplishes the reduction in a far less time than two or three months, just as I have found it in practice, which time has in no case exceeded six or eight days.

But that he should postpone until the fourth day commencing the mechanical treatment, allowing the foot to rest in its original state of deformity, seems stranger to me than all else. If we will study the physiological method of repair in the case of divided tendons we shall see the tendency of such treatment. When tendons are divided their ends separate on account of their natural contractility. To fill up this gap, Nature, during the first four or five days, provides what we call plastic material. During the next ten or fifteen days this is converted into connective tissue, and during the next twenty or thirty days it is fully developed into tendon and supplied with nerve-force and contractility. The foot remaining the first four days in its original state of deformity, the tendons are only slightly separated, hence only a small quantity of plastic material is deposited. On the fourth day, after Nature has stopped supplying this plastic material, he commences his stretching process, by which he stretches this small amount of plastic material over a distance probably three or four times as great as Nature supplied it for. I prefer to apply the mechanical treatment immediately after the operation, increasing the space between the ends of the tendons so as to make room for the greatest possible amount of plastic material, which also lessens the distance through which it must be stretched. Thus, if the heel is to be let down two inches, and the cut tendon separates by its natural contractility one inch, he will have to stretch the small amount of material deposited in this one inch over the whole two inches, or twice the distance Nature has provided it for; while, on the contrary, if I, by commencing the mechanical treatment immediately, can increase this separation to an inch and a half by the fourth day (which I have never failed to do), I have this greater space to receive this plastic material, and it has to be stretched only half an inch, or one third the distance which Nature provided it for. But he continues the stretching through the whole time in which the material is to be converted into connective tissue, and while it should be taking on nerve-force and contractility. I prefer to complete this part of the treatment at least by the eighth day, while the material is yet plastic, and then leave the parts at rest to undergo physiological repair. Can we suppose that this stretching in no way impairs the natural process of repair? What other process of repair is not better accomplished by the parts being at rest? Is it any wonder that he complains of "imperfect results," and says that "the union will be weak and that the tissue will always be liable to stretch and leave the patient with the opposite condition of deformity, *calcaneus*?" It occurs to me that our author

is doing somewhat as the surgeon does when he leaves a broken limb half dressed and gets ligamentous instead of bony union.

ERYTHROXYLON COCA; ITS VALUE AS A MEDICAMENT.

BY MARC LAFFONT, M. D., PARIS,
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DURING the last few years the therapeutic use of coca has been so greatly extended that it may be interesting and useful as a *résumé* to enumerate its many applications.

Although coca has, from its earliest introduction as a pharmaceutical product into France, enjoyed the highest professional recognition, this South American plant can hardly be said to have entered into current therapeutics. It is only since the discovery of the scientific application of the alkaloid of *Erythroxyton coca*, and since the important essays on the drug and the experiments made with it, that physicians generally have studied and recognized its therapeutic value.

It is well remembered how, in former years, the virtues of the salts of quinine were held to entirely supersede those of cinchona; in like manner this inevitable error has arisen with coca, its alkaloid, cocaine, only having been considered by many.

In consequence of the tests made with cocaine, which, from a physiological point, have established the dose and the limit of its toxic effect, and, from a medical view, have brought to light cases of abuse which have resulted in more or less serious accidents, many have been led to regard the plant coca itself as a dangerous drug.

The proof of the therapeutic value of the coca leaf is clearly shown by the many excellent results obtained in practice with such reliable preparations of the drug as have been furnished the profession by that worthy pharmacist, Mariani.

As to the comparison which many of our *confrères* make between the preparations of cocaine and of coca, we do not fear to state that, however sound may be the theory of preferring to administer certain alkaloids to administering a preparation of a plant of which the virtues vary according to where and how it was gathered, the place of its cultivation, its quality, and the constitution and nature of the preparation—we repeat, we do not fear to state that in the majority of cases, as the alkaloid does not contain all the active principles of the plant, it can not be preferred, except in special cases where the particular action of the alkaloid alone is desired.

The fact is well established that the salts of quinine can not replace the extract, the wine, or the powder of cinchona, the tonic principles and the essential oils of which have, without doubt, shown a special therapeutic value; and I need merely cite the indisputable success obtained by Professor Troussseau with the powder of cinchona in checking malarial fevers which had resisted even the largest doses of sulphate of quinine. More especially cocaine can not replace all the active principles and the essential oils of the

leaf of *Erythroxyton coca*, as has been proved from the time of the earliest discovery and use of this plant.

In 1887 at the Institute of France (Académie des sciences), and in 1888 at the Académie de médecine, I demonstrated that coca, by virtue of its active principles, had three very distinct separate actions (published in the "Proceedings"):

1. As an anæsthetic, acting upon the protoplasm of the terminations of the sensory nerves, preventing the transmission of painful sensations to the centers or the unconscious sensibility of Bichat.

2. As a nerve tonic, producing functional excitement of the cerebral and spinal nerve centers and increasing the intellectual and muscular activity.

3. As a tonic to the unstriated muscular fibers of the stomach, the intestines, and the bladder, producing functional excitement of the constrictor action of the great sympathetic nerve, with consequent functional exaltation of all the smooth muscular fibers or muscles of organic life.

The dissatisfaction produced and the complaints which are made that the plant is wanting in uniformity of quality and is unreliable in producing the desired effects, are due to the varying quality of the preparation.

An essential requisite to produce reliable uniform preparations of coca is a thorough knowledge of the origin of the leaf, its nature, and its quality.

Careful study and researches made by Mr. Mariani for many years as to the origin, the nature, the species, the culture of the different leaves of coca, and the care which he gives to his preparations, have been the means of placing at our disposal products uniform in quality and unvarying in their effects in those varied cases where their internal administration is called for.

I will cite but a few names among those of my many *confrères* whose recorded experience with the Mariani coca preparations coincides with my own, which I am about to set forth, based upon continued observation in hospital and private practice.

It has long been known that the natives used the coca leaves to lessen fatigue, to keep up the spirits, and to appease the cravings of hunger.

The first and main application of the "vin Mariani" is, therefore, as a general tonic for persons either physically or mentally overworked (Brown-Séquard, Germain Sée, Dujardin-Beaumez, Ball, Bouchut, A. McLane Hamilton, A. E. Macdonald, A. L. Ranney, L. C. Gray, L. Weber, Carlos F. Macdonald, H. M. Lyman, I. N. Danforth, P. S. Conner, J. K. Banduy, C. H. Hughes); in convalescence after lingering wasting diseases, where nourishment is needed and where it would be dangerous to overcharge the stomach; with all whose recovery is tardy from wasting or constitutional weakness; in chlorosis, anæmia, and rachitis (Ch. Robin, Durand Fardel, Gubler, De Piétra-Santa, Fordyce Barker, Isaac E. Taylor, A. L. Loomis, W. T. Lusk, F. P. Foster, C. C. Lee, J. J. Henna, L. L. McArthur).

It is further used in diseases more specially referable to atony of the smooth muscular fibers, among which we class atony of the stomach. In dyspepsia, in those very common cases where this organ has become weak and torpid, is dis-

tended, and fails to secrete gastric juice, coca is well indicated (De Saint-Germain, Cottin, Dienlafoy, Salemi, Companyo, Rabuteau, A. J. C. Skene, P. A. Morrow, T. C. Giroux, Hunter McGuire, E. R. Palmer, O. O. Burgess, J. R. Leaming, Daniel Lewis, T. E. Satterthwaite, W. H. Pancoast, D. F. Woods, J. N. Hyde, L. G. N. Denslow).

It is also serviceable in weakness of the vocal cords, in the case of ministers, singers, actors, teachers, and orators (Ch. Fauvel, Morell Mackenzie, Lennox Browne, Botkine, Cozzolino, Zawerthal, Poyet, Coupard, Fraenkel, Marius Odin, Labus, Massei, Louis Elsberg, R. P. Lincoln, Beverley Robinson, W. C. Jarvis, H. H. Curtis, C. C. Rice, C. E. Sajous, E. Fletcher Ingals, H. Schweig, T. R. French).

It is, moreover, of value in weakness of the vascular organs, with the anæmic, the plethoric, where, principally on the face, the small blood-vessels show enlargement or venous arborescence which points to a similar state in the vessels of the nervous centers. The same vascular weakness is also observed with the varicose, in whom coca is indicated; likewise with the paraplegic, with whom it regulates the circulation of the nervous centers (Bernard, Bétancès, Landowski, Casenave-Delaroche, Gazeau, Rabuteau, V. P. Gibney, Robert Newman, E. B. Bronson, J. E. Janvrin, B. McE. Emmet, W. O. Moore, W. J. Morton, D. W. Yandell, J. H. Etheridge).

It may be also as a regulator of the nervous centers that the infusion of coca known as thé Mariani produces such marvelous results in mountain-sickness, in sea-sickness, and in the vomiting of pregnancy. It is well remembered how this preparation sustained the illustrious General Grant during several months (Cuffer, Letellier, Dérécagaix, Trossat, Boulonmie, Dechambre, Fordyce Barker, G. F. Shrady, J. H. Douglas, H. T. Hanks, G. R. Fowler, J. M. Keating).

From a psychological point of view and from mental pathology it may be stated that coca is the only drug which successfully combats melancholia, low spirits, and all forms of depression of the nervous system, upon which it acts "like fulminate," to use the felicitous expression of Professor Gubler.

Graves's Disease.—"A case of Graves's disease in the Academical Hospital at Upsala, under the care of Dr. I. Aug. Hammer," says the *Lancet*, "tends to confirm Benedikt's view that the cervical branch of the sympathetic is not affected in this disease. *A priori* it seemed probable enough, as exophthalmos had developed more rapidly on the left side, and at the same time sensibility over the superior cervical ganglion of the left side existed, together with long-standing headache affecting the left side, and partaking of the character of paralytic hemiplegia. The result of microscopic examination was, however, quite negative. In twenty-two post-mortem examinations in Graves's disease, published from 1860 to 1887, the sympathetic nerve was found quite normal in fifteen; in the other cases, either unilateral atrophy of the nerve elements—especially of the ganglion cells—was found, or the connective tissue was hypertrophied, or these two conditions co-existed."

Ergot in Cholera.—"Surgeon-Major Comerford, of India, has recently been using the fluid extract of ergot with marked success in the first stages of cholera and in severe diarrhoea. The drug was used hypodermically in ten-minim doses. In every instance its use was followed by complete success, the diarrhoea being quickly checked and collapse averted. These results were, however, only obtainable during the first stages of the disease."—*Medical and Surgical Reporter*.

A CASE OF DIABETES MELLITUS IN A CHILD FIVE YEARS OLD.

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THE rarity of diabetes mellitus in childhood makes the following case worthy of record. I saw the case with Dr. J. J. Youtsey, of Alexandria, Ky., in July, 1888, and am indebted to him for the following notes:

The child was five years and eleven months old when the symptoms of disease were first noticed. Dr. Youtsey saw the case for the first time on July 25th. Up to this date the parents, who were German farmers, had not thought their little girl seriously sick, although they knew she had not been quite well for some time. The mother remembered that in April, three months before, the child had begun to lose flesh, but nothing was thought of it at the time, as she had a good appetite and showed no other indications of sickness. She continued to lose in weight and strength, and during the past few weeks had had an unusual appetite and thirst, and had passed very large quantities of urine. During all this time the child had gone about and had not complained, and for this reason the parents did not think her sick enough to demand medical attention until July 25th, when the doctor was sent for. At this date her temperature was 99.75° F. and her pulse 112. She was not restless and had no pain, but was quite weak and very much emaciated. The voracious appetite which had characterized her sickness had disappeared two days before, but the insatiable thirst continued. She was passing daily from six to seven quarts of colorless urine, with a specific gravity of 1.035 and containing a large percentage of sugar. The child was given fluid extract of ergot and placed upon a diabetic diet.

July 28th.—Temperature 98°, pulse 116, amount of urine six quarts; child very weak and dull; no pain.

29th.—Died at 10 A. M.

WHAT SPECIAL MECHANICAL TREATMENT HAS PROVED MOST SERVICEABLE FOR EACH VARIETY OF REDUCIBLE AND IRREDUCIBLE HERNIA?*

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At the Hospital for Ruptured and Crippled of this city I have had an opportunity to treat mechanically many cases of hernia, the average daily attendance being between forty and fifty patients. While it is found that the simple and inexpensive truss of Dr. Knight, the founder of the hospital, is satisfactory in a large proportion of cases, it is necessary occasionally to resort to other forms. The management is liberal enough to permit the use of any truss that the medical staff may approve.

Last year's observations, like those of previous years, have demonstrated that no special form of truss is applicable to all cases.

Inguinal Hernia.—The great majority of cases being inguinal, my remarks will for the present be directed to

* Read before the New York State Medical Association, September 26, 1889.

this variety. For convenience and practicability I have divided it into three degrees, as follows:

1. A simple bubonocoele, where the viscus remains in the canal.

2. The hernia is without the external ring, but the canal remains oblique or intact.

3. When the canal is obliterated, and the external ring is enlarged. This last degree is practically a direct hernia.

The difficulty with which herniæ of the first and second degrees are retained is usually not great when any form of truss is employed. The most satisfactory treatment has been accomplished by the following five forms of truss:

1. The spiral spring, of which there are many modifications, is too well known to call for a description. This style is especially adapted to patients that require perfect freedom of the abdominal walls, as only a leather strap is in front. In cases of the third degree it is often necessary to attach a perineal strap; even with this procedure a few exceptionally difficult cases can not be retained.

2. The Knight has a band that is almost elliptical and extends about three fourths around the body; on the end is attached a malleable shank, with a round or oval pad. The band should be so tempered that it can be fitted to the body after it is covered. The mechanism is very simple, and, with the proper adjustment of the shank, there are very few cases even of the third degree that are unmanageable. The addition of a perineal strap assists greatly in keeping the pad in position. A double truss can be made by attaching another shank about four or five inches from the end of the band that crosses the abdomen.

3. This differs from the foregoing in that it has no shank. The Seeley, which is covered with hard rubber, and the celluloid of Pennfield, are the most durable ones of this form. This truss is better suited to the first and second degrees, because pressure does not have to be made so low. It is also applicable to the third degree, but is somewhat less efficient than the Knight.

4. The complete band is represented by the Hood. This truss has a tempered bar on each side that extends from the sacro-lumbar joint to the inguinal region, where it is attached to a slotted steel plate, and these are connected by a bar that is considerably heavier than those of the side. The pads being also slotted, allows the truss to be modified to suit most all forms of inguinal hernia. With a well-fitting band, the antero-posterior pressure can be regulated by the thickness of the pad. Only in extreme cases of the third degree does a large pad have to be employed.

5. A truss that has been quite efficient in cases with corpulent abdomens and large rings is the complete band with a shank. This is simply a combination of the Hood and Knight (See cut.) The band, which is a single piece of bar steel, is fitted to the pelvis and abdomen with the patient standing. It is especially important that the band should come just beneath each anterior superior spinous process to prevent upward displacement. Although the band crosses the lower portion of the abdomen, it need not restrict its movements, because it can be arched forward without decreasing the usefulness of the truss. The shank has to be slightly longer than on the Knight, but otherwise

it is identical. The band has about the same dimensions as that of the Hood. The use of this truss has been limited to



those cases that were especially difficult to retain, and care has been taken to get a perfect fit in each instance. But for the ordinary cases of inguinal hernia it is quite unnecessary to make a truss for each when such varieties of form are at our disposal.

Femoral Hernia.—As the anatomical relations are much less varied in femoral than inguinal hernia, it is unnecessary to make any subdivision. This form of hernia is very rarely difficult to retain, however simple the appliance may be.

The two styles of truss that are best adapted to its treatment are the spiral spring and the Knight.

Umbilical Hernia.—The most satisfactory treatment of umbilical hernia in children has been with rubber adhesive plaster and a small pad. The plaster should not be changed more frequently than once a week, and should be allowed to remain two weeks if no excoriation is produced. In patients past three years a French umbilical truss can be applied, but difficulty is often encountered in keeping the pad in position. The percentage of incurable cases in children is very small, while with adults it is the reverse. As only palliative measures are usually attempted with the latter class, it is found that the abdominal supporter answers this purpose admirably.

Irreducible Hernia.—In the majority of cases of irreducible hernia of the inguinal and femoral types operative treatment is advised; but there is a certain number of cases of epiplocele whose symptoms are slight and who decline to be operated upon. In this class of cases the application of a simple spica with a soft pad, reapplied every day, often accomplishes partial or complete reduction after a week or ten days. This method has been chiefly effective in cases of femoral hernia.

Irreducible Umbilical Hernia.—As irreducible umbilical hernia is almost exclusively met with in the adult, rarely are any more than palliative measures attempted. Should no symptoms of incarceration be present, the application of an abdominal supporter usually partially reduces the mass, and this can be still further assisted by adding a large flat pad.

A New Cure for Headache.—“Several Moorish envoys have arrived in France. They are accompanied by a native doctor, who, judging from an account received of his *modus operandi* from the Phœœan city, seems rather given to the adoption of heroic remedies. A negro servant had a headache, and, as he had vainly applied slices of lemon to his throbbing temples, the medical gentleman took him in hand. Violently seizing the skin between the patient’s eyebrows, the ‘doctor’ bit it till it bled, and then, taking hold of the man’s ears, he nearly pulled them off. But he worked a rapid cure. The headache was gone, at least so said the unlucky patient, and he ought to have known.”

—*British and Colonial Druggist.*

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THE SENSE OF SMELL.

THERE is no other cranial nerve which presents so much to puzzle the physicist, the anatomist, and the physiologist as the olfactory. The course of its fibers from the nasal mucosa to the cortex in the temporo-sphenoidal lobe is devious and obscure, but the phenomenon of matter of various kinds imparting the sensation of odor by contact with the periphery of the first nerve is still more mysterious. With regard to light and color and all the sounds of the octave, we have long been able to conceive of their reception and differential appreciation by the cortex as due to vibration and variation in vibration rates. The wave-theory accounts satisfactorily for these visual and auditory phenomena.

There are some well-known facts concerning the olfactory sense which have always been matters of daily familiarity, but which we have not as yet scientifically interpreted. For instance, some odors, though mingled together, can still be dissociated and recognized by the olfactory nerve-ends, whereas others, on the contrary, overwhelm one another, so that one only may be perceived, the other being completely suppressed. This antagonism has been little studied, and has been generally dismissed by the physiologist under the assumption of a chemical process occurring in the mixture. As illustrating this internecine warfare among smells, the odor of almonds conquers that of musk; certain ethereal oils destroy the unpleasantness of iodoform; orris-root is employed against bad breath; sulphuric ether overcomes Peruvian balsam; camphor makes the odors of the oils of lemon and juniper, of petroleum, of cologne, and of onion disappear; and coffee and cloves have the reputation in our drawing-rooms of being inimical to certain spirituous exhalations.

There seems, then, to be a sort of strife between odors of various kinds—a strife inexplicable upon any simply chemical theory; and it is more than probable that the vibratory hypothesis must needs be accepted to account for the sensation of smell as well as for those of light and of sound. Not long ago Professor Haycroft ("Brain," July, 1888) made some investigations upon the olfactory sense, from which he drew the conclusion that the sense of smell as well as that of taste depended upon the rate of vibration of gaseous particles, and he found, moreover, a relation existing between the molecular weights and vibrations of bodies and the odors which they exhaled.

More recently Dr. Zwaardemaker, of Utrecht ("Fortschritte der Medicin," Oct. 1, 1889), has been studying the same subject in a manner to throw additional light upon the difficult problem. He has constructed an instrument which he calls an olfactometer. It consists simply of a glass tube, one end of

which curves upward to be inserted into the nostril. A shorter movable cylinder made of the odoriferous substance, or a cylinder of filter-paper moistened with any redolent matter, fits over the straight end of this glass tube. When one inhales through the glass tube no odor will be perceived so long as the outer cylinder does not project beyond the inner tube; and the further we push forward the outer cylinder the larger will be the surface of scented substance presented to the in-rushing column of air, and the stronger will be the odor perceived. The cylinder may be made, for instance, of ordinary yellow wax, balsam of Tolu, gum benzoin, cacao-butter, paraffin, Russia leather, vulcanized rubber, etc.; or it may be fashioned of porous earthenware, which may be saturated with a known solution, either in water or in oil, of any odoriferous compound whose qualities it is desired to investigate. Whatever sort of cylinder is used, it should be of a fixed size, graduated in millimetres, 10 centimetres long by 8 millimetres in diameter.

In employing the instrument one inhalation is taken at a time. A normal sensory organ under ordinary circumstances and at 15° C. will always require the same quantity of scented material for the production of the minimum of perception. This normal perceptible minimum can be accurately determined and mathematically expressed by means of the graduated cylinder. In this manner one odor may be compared with another. The unit of olfactory irritability may be termed an olfactor, its value being equivalent to the number of millimetres of the cylinder necessarily exposed in order to obtain the faintest smell from the substance used. Thus, at 15° C., the olfactor of cedar-wood has been found to be 20 mm., and that of paraffin, Russia leather, and gum benzoin each 10 mm., etc.

Should one desire to study the effect of mingling two odors, it is only necessary to saturate the cylinder of the olfactometer with one scented body and another cylinder with another. By the juxtaposition of the ends of the two cylinders, the lengths being accurately determined, the air rushing in upon inhalation through the tubes must take up and mingle the two odors. The author found by this means that whenever one outweighed the other, he perceived the one or the other smell, but that when both were in exact equilibrium, either no odor at all was perceived or at most a very weak and uncertain impression was made, which partook of the qualities of neither of the two substances employed.

But as some sort of union of the gaseous molecules could not be altogether excluded by this method, such as an indifferent osmotic or physical combination preventing sensory perception, it was deemed expedient to make use of a double olfactometer in experiments of this character. This instrument consists merely of two of the olfactometers described above, one for each nostril. The difficulty that the two nasal organs may differ in their sensitiveness must be borne in mind, and the olfactor of each determined. We may then employ different scented substances, either in minimal quantities or up to two or three olfactors. By the use of the double olfactometer one may easily convince himself that even in this procedure one odor will overwhelm another, rubber, for instance, causing the

smells of paraffin, wax, and Tolu balsam to disappear. Even with very strong excitants there is never a mingling of sensations. Either the one or the other odor is distinguished by one or the other nostril, until, by careful equilibration of the two, no sensory effect is at all perceived. Sensibility is absolutely eliminated. Each nasal half becomes in this manner completely insensible to the odor inhaled through it, although its sensitiveness is really the same as before.

A striking example of this may be observed in making use of a two-per-cent. solution of acetic acid in one cylinder and a one-per-cent. solution of ammonia in the other. Both are powerful sensorial excitants. By pushing first one and then the other cylinder forward on the nasal tubes, first one and then the other odor is strongly perceived, while at one position, the point of equilibrium, no smell of any kind is noticeable. Were such a disappearance of the effluvia observed to take place in the open air, it would naturally be supposed to be due to a chemical combination of the two substances in the form of an odorless salt of ammonium. But under the circumstances such an explanation is out of the question, and the phenomenon is explicable only upon physiological grounds analogous to the well-known compensation occurring in the gustatory sense. Dr. Zwaardemaker is, however, averse to offering any hypothesis in elucidation of the problem.

We are constrained to believe that there is something in the vibratory theory, already applied to sight and hearing, to account for these remarkable facts in the domain of smell, and that is the interference of molecular waves with each other, producing in the former cases darkness and silence and in the latter temporary anosmia.

MEDICAL PRACTICE IN OLD TIMES.

It is not in reading the works of ancient medical authors that one has glimpses of the general practitioner or specialist of that day in their relations to the people. From the works of Hippocrates and Galen, and from those of the skilled Arabian physicians, we learn many interesting medical and surgical facts, some of which, to tell the truth, have only recently been rediscovered and relabeled by modern practitioners unfamiliar with the experiences of their ancient *confrères*. But it is to popular writers—the poets and philosophers of the past—that we must turn for those side-lights which show us the doctor himself in his various practical attitudes. In the course of some desultory reading we may meet with such passages as abound, for instance, in the works of Epictetus. He was born toward the end of the reign of Nero, somewhere in Phrygia, and, although a Greek and a philosopher, was the slave of a Roman captain, as it was fashionable in those days for prominent Romans to add living poets, wise men, and athletes to their anthropological collections acquired from every zone.

Epictetus pictures the general practitioner in Rome in this wise: "Going about as a physician does and feeling pulses, saying to one you have a fever, to another you have a headache

or the gout; to one, abstain from food; to another, eat, or do not use the bath; to another, you require the knife or the cautery." (Book iii, chap. 22.)

Here is a little side-light upon household remedies, those familiar crotchets of the old ladies of Rome: "Eye salves are not useless to those who use them as they ought and when they ought. Fomentations are not useless. Dumb-bells are not useless. Let him who is suffering from dysentery ask me if vinegar is useful. Seek first for the discharge to be stopped and the ulcers to be closed." (Book ii, chap. 21.)

Antisepsis was exceedingly popular, as the following bears witness: "For this reason, water, oil, hands, towels, scrapers, nitre, sometimes all other kinds of means are necessary for cleaning the body." (Book iv, chap. 11.)

Here is a query for the ophthalmologist: "What is more paradoxical than to puncture a man's eye in order that he may see?" (Book i, chap. 25.)

The climatologist had also his place in Rome: "Thus also physicians send those who have lingering diseases to a different country and a different air." (Book iii, chap. 16.)

We have an occasional glimpse of the obstetrical service of those days: "To say nothing of the rest, he must have a vessel for heating water to bathe the child; wool for his wife in labor; oil, a bed, a cup." (Book iii, chap. 22.)

The allusions to the aliptic art are exceedingly numerous, for the *aliphtæ* were the *masseurs* and *masseuses* of that day. Massage and inunction were far more widely employed then than even now.

It seems that, through some defect in the laws perhaps, diploma mills must have been run very fast in Rome in the time of Nero and his successors. There must have been more doctors than were actually needed, and the struggle among them for practice must have presented the same edifying spectacle that we behold to-day in various places. Otherwise, how are we to explain the following? "What physician invites a man to be treated by him? Indeed, I now hear that even the physicians in Rome do invite patients, but when I lived there the physicians were invited." (Book iii, chap. 23.) "If you like, take your place in the agora and proclaim your syllogisms for sale like dealers in physic!" (Book iii, chap. 24.)

Were the foregoing passages written eighteen centuries ago or yesterday? Coming down to a little over two hundred years ago, to London, Mr. Samuel Pepys, among his famous commentaries upon the life and fashions of that time, especially at court, does not forget to mention the great representatives of our profession with due respect and honor. What color could he have added to this sketch to bring the doctors in a more life-like manner before our mind's eye? It was written in his "Diary," September 19, 1664: "Dr. Pierce tells me, when I was wondering that Dr. Fraizer should order things of the Prince in that confident manner, that Fraizer is so great with my lady Castlemaine, and Stewart, and all the ladies at court, in helping to slip their calves when there is occasion, and with the great men in curing of them, that he can do what he please

with the King, in spite of any man, and upon the same score with the Prince; they all having more or less occasion to make use of him."

MINOR PARAGRAPHS.

DEEP INCISIONS INTO THE SOFT PARTS IN DIFFICULT CASES OF LABOR.

A BOLD operation is proposed by Dührssen in the "Prager medicinische Wochenschrift," which he professes to have performed ten times. In each case the mother was saved, but all the children had died during the prolonged labor. Two of the mothers were in danger from eclampsia at the time of the operation. It is said to be indicated in old primiparæ where there is great rigidity of the parts with weak pains, when there is danger from eclampsia, after premature rupture of the membranes, when the pelvis is flattened so that the head of the child will not engage in the superior strait, and when the cervix is rigid or cicatricial as a result of venereal disease, carcinoma, ulceration, or operation. The technique is as follows: No speculum is required. The cervix is seized with the fingers or with forceps, and when the tissues are well stretched an incision 3 cm. deep is made toward the tuber ischii on each side, extending 4 cm. up the vagina. The child is then easily removed. The hæmorrhage is slight and easily controlled. After the birth of the child the wounds are drained and treated with iodoform. In cases of eclampsia an anæsthetic is not necessary. The chief danger seems at first to be that of the wounds being torn to a greater depth, but Dührssen asserts that there is no danger of this, inasmuch as the canal thus formed is sufficiently large to allow of the passage of the child's head without causing sufficient tension to tear the wounds any deeper.

"BISULPHATE OF MORPHINE."

A LAWSUIT interesting to the members of the medical profession as well as to apothecaries is now before the courts in Montreal. A French Canadian practitioner, wishing to prescribe quinine for a young child, through absent-mindedness wrote upon his prescription *bisulphate of morphine* instead of *bisulphate of quinine*. The paper was taken to the shop of a well-known apothecary, whose assistant, perceiving an error, at once, after the manner of inexperienced dispensers, attempted a substitution, and made up the powders with sulphate of morphine. The result was fatal. And now a curiously complicated question has to be settled by the judges. The father of the child has sued the doctor because it was through his absent-mindedness that the child lost its life. The doctor has sued the apothecary for all the damages to which the father's suit may put him. It is true, he pleads, that he ordered bisulphate of morphine, and that, if such a substance existed and if the apothecary had sent it to the child, he would be responsible, but he never ordered *sulphate* of morphine, and it was the sulphate of morphine that killed the child. It will be interesting to know the result of the trials.

LEAD POISONING FROM GINGER ALE AND SODA-WATER.

SEVERAL cases of lead poisoning have occurred within the last few months in Montreal which have been traced to the use of soda-water and ginger ale kept in bottles with metallic stoppers. A patient in the Montreal General Hospital, who is at present the subject of wrist-drop and other saturnine manifestations, acknowledges having indulged very freely in soda-water at the bar where he was serving. There was a distinctly marked lead line, and lead was found in the urine. Samples of

the "cream" soda have been analyzed by Dr. Ruttan at the university laboratory, and found to contain a very large quantity of lead.

A LARGE GIFT FOR HOSPITAL PURPOSES.

A VALUABLE bequest has befallen Pittsburgh, Pa., for hospital purposes, under the will of John H. Schoenberger. Eight hundred thousand dollars and a valuable block of ground have been bequeathed to establish the St. Margaret's Memorial Hospital for Incurables, to be administered under the auspices of the Episcopal Church. This large endowment will, in all, reach to nearly a million dollars in value.

CHRIST HOSPITAL, JERSEY CITY.

A NEW hospital building was dedicated in Jersey City, on November 13th, by a notable company of bishops and other clergy, the Governor of the State, and the mayors of two cities, along with many medical men. This hospital will be superintended by the sisterhood of St. Margaret, of the Episcopal Church, but its charities will be dispensed regardless of creed or denomination. There will be an out-patient department, a contagious disease isolation ward, maternity wards, eye and ear wards, and an ambulance annex. Dr. A. C. Post and Dr. Joseph Hilton are among those newly appointed to the consulting staff.

RETINAL CHANGES IN CHRONIC ALCOHOLISM.

THE "British Medical Journal" records, in its report of the Ophthalmological Society of the United Kingdom, the following results of ophthalmoscopic and microscopic examinations (made by Mr. Edmunds and Mr. Lawford) of the retina of a man who had died of alcoholic paralysis and heart disease. The ophthalmoscopic changes consisted of widespread haziness of the retina, without hæmorrhage or localized exudation. Sections of the retina revealed slight œdema of the nerve-fiber layer in the immediate vicinity of the optic disc and well-marked œdema spaces in the outer granule layer. In these spaces there were round and oval masses of clear homogeneous effusion. The only other recorded similar case, so far as the authors know, is one reported by Dr. Sharkey.

THE PENNSYLVANIA "UNIVERSITY PRESS."

THE friends of the University of Pennsylvania are about to form a syndicate of publication, under the name of "The University Press." Their purpose is to control the present publications in the interests of the University and issue such new ones as seem to be needed. Four magazines will probably be on foot at the beginning of the new year. Among the supporters of this undertaking are Dr. D. Hayes Agnew, Dr. H. C. Wood, Dr. James Tyson, Dr. John Marshall, Dr. Edward Martin, Dr. J. H. Musser, and Dr. S. D. Risley. Dr. O. W. Holmes is named as having promised to contribute to the magazines.

MEDICAL LIBRARIES IN THE WEST.

A CHICAGO correspondent of the "Medical News" complains that that city has no good medical library. He shows that, although a large sum is presently to be invested in the Newberry and Crerar libraries, medicine has no part in the matter; and the Chicago Public Library seems entirely ready to get rid of its medical "incubus." The only important medical collection within the valley of the Mississippi, he says, "is located at Milwaukee, and is a private institution." The Chicago profession must, he thinks, rely wholly upon themselves and must

sink all other differences and antagonisms in order to build up their newly proposed Medical Library Association.

THE DOCTOR IN GENERAL LITERATURE.

UNDER the title of "The Pardon of Ste.-Anne d'Anray, and other Breton Pictures," Dr. William Perry Northrup contributes to the current number of "Scribner's Magazine" an exceedingly clever portrayal of some of the peculiarities of the people of Brittany, interspersed with brief but telling comments. We have before had occasion to speak of Dr. Northrup's work in general literature, and we hope that opportunities of referring to it in the future will not be lacking.

THE CHILDREN'S AID SOCIETY.

THE thirty-seventh annual report of the New York Children's Aid Society shows that 38,850 children were under observation and cared for, more or less, during the year; 4,500 children were received at the Summer Home at Bath, and 1,400 received the aid afforded by the Sick Children's Mission; 850,000 meals and 220,000 lodgings were supplied at the six lodging-houses and thirty schools.

A FIREMAN'S WARD.

A MOVEMENT is on foot to raise a fund for the establishment of a ward in some prominent hospital for sick and injured firemen and fire-patrolmen. Mr. Chauncey M. Depew and a number of well known citizens are reported to be interested in this beneficence, and its success is probably assured.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 3, 1889:

DISEASES	Week ending Nov. 26.		Week ending Dec. 3.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	30	6	24	10
Scarlet fever.....	53	7	40	2
Cerebro-spinal meningitis....	1	1	0	0
Measles.....	41	5	30	5
Diphtheria.....	81	21	73	17
Varicella.....	6	0	5	0

The "Lehigh Valley Medical Magazine."—The Medical Association of the Lehigh Valley is about to publish a quarterly journal, of about two hundred pages annually, to further the interests of the profession in that part of Pennsylvania.

The "Country Doctor."—Dr. J. T. McColgan, of Arcot, Tenn., has a journalistic conception under consideration and expects to bring out a new monthly, to be called "The Country Doctor," on or about January 1, 1890.

The Death of Professor Richard Volkmann, of Halle, is announced. He was well known in this country, not only by his personal work as a surgeon, but also by his exceptionally valuable collection of variorum "Klinische Vorträge."

The late Dr. Walter De Forest Day.—Dr. Day, whose death occurred on Wednesday of last week, had for many months been known to be the subject of an aortic aneurysm, and had been unable to continue his meritorious career in the service of the Health Department and as a teacher in the College of Pharmacy. His industry, precision, and amiable quali-

ties will be much missed by those with whom he was brought into contact.

The Medical Microscopical Society of Brooklyn.—At the meeting of Wednesday evening, the 4th inst., the order for the evening was a paper on "Technical Methods for the Central Nervous System," by Dr. E. H. Wilson.

Change of Address.—Dr. L. Bolton Bangs, to No. 31 East Forty-fourth Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from November 18 to November 30, 1889:*

LORING, LEONARD Y., Major and Surgeon. By direction of the Secretary of War, the extension of leave of absence on surgeon's certificate of disability granted in S. O. 241, October 16, 1889, from this office, is still further extended one month on surgeon's certificate of disability. Par. 3, S. O. 268, Headquarters of the Army, A. G. O., November 16, 1889.

MOSELEY, EDWARD B., Captain and Assistant Surgeon, is relieved from duty at Whipple Barracks, Arizona, to take effect upon the expiration of his present leave of absence, and will report in person to the commanding officer, Fort Clark, Texas, for duty at that station, reporting by letter to the commanding general, Department of Texas. Par. 4, S. O. 268, A. G. O., November 16, 1889.

FISHER, WALTER W. R., Captain and Assistant Surgeon, is relieved from duty at the Presidio of San Francisco, Cal., and will report in person to the commanding officer, Fort Assiniboine, Montana, for duty at that station, reporting by letter to the commanding general, Department of Dakota. Par. 4, S. O. 268, Headquarters of the Army, A. G. O., November 16, 1889.

EBERT, RUDOLPH G., Captain and Assistant Surgeon. The leave of absence on surgeon's certificate of disability granted in S. O. 109, May 11, 1889, from this office, is extended six months on surgeon's certificate of disability. Par. 13, S. O. 270, Headquarters of the Army, A. G. O., November 19, 1889.

HAVARD, VALERY, Captain and Assistant Surgeon. By direction of the Secretary of War, the extension of leave of absence granted in S. O. 240, October 15, 1889, from this office, is further extended one month. Par. 1, S. O. 272, A. G. O., November 21, 1889.

BALL, R. R., First Lieutenant and Assistant Surgeon, Fort Riley, Kansas, will proceed to Fort Sill, Indian Territory, and report to the commanding officer for temporary duty at that post. Par. 2, S. O. 173, Department of the Missouri, November 21, 1889.

PILCHER, JAMES E., Captain and Assistant Surgeon, is relieved from duty at Fort Ward, New York Harbor, by direction of the Secretary of War, and will report in person to the commanding officer, Fort Clark, Texas, for duty at that station, reporting also by letter to the commanding general, Department of Texas. Par. 3, S. O. 276, A. G. O., November 26, 1889.

COCHRAN, JOHN J., Captain and Assistant Surgeon. Leave of absence for fifteen days is granted, to commence about December 1, 1889. Par. 8, S. O. 272, Division of the Atlantic, November 27, 1889.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending November 30, 1889:*

RUSH, W. H., Passed Assistant Surgeon. Ordered to the U. S. Steamer Saratoga.

- URIE, J. F., Assistant Surgeon. Detached from the Coast Survey Steamer Gedney and ordered to the U. S. Steamer New Hampshire.
- BRYANT, P. H., Assistant Surgeon. Detached from the Norfolk Hospital and ordered to the Coast Survey Steamer Gedney.
- SMITH, GEORGE T., Assistant Surgeon. Detached from the Army and Navy Hospital, Hot Springs, Ark., and ordered to the Naval Hospital, Norfolk, Va.
- STONE, E. P., Assistant Surgeon. After examination for promotion, to await orders at Boston, Mass.
- GUNNELL, F. M., Medical Director. Placed on the retired list November 27, 1889.
- GAINES, J. H., Surgeon. Ordered to duty at Army and Navy Hospital, Hot Springs, Arkansas.

Society Meetings for the Coming Week:

- MONDAY, *December 9th*: New York Academy of Medicine (Section in Surgery); New York Ophthalmological Society (private); New York Medico-historical Society (private); New York Academy of Sciences (Section in Chemistry and Technology); Lenox Medical and Surgical Society (private); Boston Society for Medical Improvement; Gynæcological Society of Boston; Burlington, Vt., Medical and Surgical Club; Norwalk, Conn., Medical Society (private); Baltimore Medical Association.
- TUESDAY, *December 10th*: New York Medical Union (private); Medical Societies of the Counties of Chemung (quarterly—Elmira), Oswego (semi-annual—Oswego), Rensselaer and Ulster (quarterly), N. Y.; Newark, N. J., and Trenton, N. J. (private), Medical Associations; Morris, N. J., County Medical Society (semi-annual); Baltimore Gynæcological and Obstetrical Society.
- WEDNESDAY, *December 11th*: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medico-legal Society; Medical Societies of the Counties of Cayuga (semi-annual), Cortland (semi-annual), and Montgomery (quarterly), N. Y.; Pittsfield, Mass., Medical Association (private); Philadelphia County Medical Society.
- THURSDAY, *December 12th*: New York Academy of Medicine (Section in Pædiatrics); New York Laryngological Society (annual); Society of Medical Jurisprudence and State Medicine; Brooklyn Pathological Society; South Boston, Mass., Medical Club; Pathological Society of Philadelphia.
- FRIDAY, *December 13th*: New York Academy of Medicine (Section in Neurology); Yorkville Medical Association (private); Medical Society of the Town of Saugerties.
- SATURDAY, *December 14th*: Obstetrical Society of Boston (private).

Letters to the Editor.

DANGER IN THE RHEOSTAT.

50 N. FOURTH STREET, COLUMBUS, O., *November 29, 1889.*

To the Editor of the New York Medical Journal:

SIR: A rather unique and painful accident happening in my practice a few days since opened my eyes to a new element of danger in the use of electricity, and I make haste to lay it before the profession. Nearly all writers and teachers of electrotherapeutics on this side the Atlantic denounce the collector and advise the substitution of the rheostat. They maintain that the successive turning on of cells through the collector is accompanied by disagreeable shocks to the patient, and that, as certain

cells are habitually used to the exclusion of others, the battery becomes unevenly exhausted, and will require more care. Furthermore, the leash of wires running from the individual cells to the collector multiplies the chances of derangement and adds to the uncertainty of action. All this is true, and, although I was possessed of a new and elegant sixty-cell Leclanché-Gonda battery with a collecting board of the most approved pattern, I was much annoyed by these selfsame conditions and added hydro-aluminium rheostat. It worked admirably, and I was seriously contemplating the entire abandonment of the collector when my rheostat began to work imperfectly. I first noticed that, owing to the increased resistance caused by its interposition, my milliampèremeter did not register much more than half as much with the same number of cells as without it, so that greater battery power was needed to produce the same effect. I next noticed irregular and erratic excursions of the needle and simultaneous complaints on the part of the patient that the electrical flow was irregular. I now gave the rheostat a thorough overhauling and cleaning, as I supposed; and at this juncture a young lady whom I had been treating for stenosis of the uterine canal presented herself for treatment. The electrodes being adjusted and the full force of the battery being made available, the current was turned on through the rheostat until the needle stopped at 70. All of a sudden the patient complained, and, seizing the wheel of the rheostat to turn off the current, I was horrified to see the needle bound up to nearly 350 milliampères. Simultaneously the patient uttered a series of shrieks, cried out that she was dying, and lapsed into unconsciousness. Turning off the rheostat had no effect on the electrical current, and, stepping to the collector, I turned off the current as rapidly as might be without creating too much shock. Addressing myself to the patient, who lay pale and death-like, it was fully two minutes before she gave evidence of returning consciousness. Fortunately, she was a woman of good physique, and the effects soon passed off. Had she been a subject of heart disease or other serious organic lesion, it is problematic what the result might have been. On examining the rheostat critically, I found that a small flake of the smegma-like deposit that forms on the aluminium plates had floated out and adhered to the central plate, thus forming a connection that allowed the almost full force of the battery to flow through the patient independently of the immersion. I have for the time being discarded the rheostat, preferring the inconveniences, but greater safety, of the collector. Should I return to its use, I shall only turn on so many cells at once as I think the case may need.

D. TOD GILLIAM, M. D.

THE TYPHOID SPINE.

189 GREEN LANE, MANAYUNK, PA., *December 1, 1889.*

To the Editor of the New York Medical Journal:

SIR: Your issue of 30th ult. contains an article by Dr. V. P. Gibney entitled "Typhoid Spine." Less than one year ago a case came under my care which can be justly placed under that title. The history is briefly as follows:

Ella S., aged twenty-two, single. Mother living, the subject of diabetes mellitus. Father and one sister dead, cause unknown. One brother living and healthy. January, 1889, attacked with typhoid fever. The fever ran its usual course with no marked irregularities. Indeed, the only complaint made was of rather an unusual amount of pain in the loins. The temperature was normal at the end of the fourth week. She complained of nothing except excessive pain in the lumbar region on movement. Toward evening the pain would become almost unbearable—so great that anodynes were used. Careful examination was made of the lumbar region. There was no

fullness and there was no marked tenderness, but great pain on movement, always referred to the right lumbar region. The urine was normal. Vaginal, rectal, and abdominal examinations were negative. There was no pain on movement of either hip. No tenderness along the sciatic or crural nerve. Blisters over the seat of pain and continued counter-irritation were tried without much effect. After four weeks' rest in bed or a reclining chair, she was able to be out and rapidly improved. About the ninth or tenth week from the beginning of the fever she went to work. She is a finisher in a paper mill and stands all day. After one week's work she was suddenly seized with severe pain in the old situation, which again confined her to bed. She was again examined carefully with entirely negative results, except that pain was excessive in the lumbar region on attempting to rise.

Rest was enjoined, potassium iodide was given with apparent benefit, and it was suggested to fit a jacket in order to enable her to be about. She became dissatisfied and passed into the hands of a "worm doctor." After several weeks of rest in bed, however, she again recovered and has been at work for the past three or four months and is apparently well.

A diagnosis of a low grade of inflammatory trouble about the ligaments of the lumbar spine was made.

M. H. FUSSELL, M. D.

OCULAR DEFECTS AND THE NEUROSES.

NEW YORK, November 29, 1889.

To the Editor of the New York Medical Journal:

SIR: I find myself very much surprised by a leading article in your Journal of November 30th. I refer to one entitled "Ocular Defects and the Neuroses." I was present at the meeting of the Neurological Society there referred to. I heard the report of the committee, the protest and answer of Dr. Stevens, the evidence of the extra-official commission chosen by Dr. Stevens himself, and yet I failed to understand, as stated by your editorial, that six patients out of fourteen had been improved by ocular tenotomy. Now, if such a complete misapprehension has occurred on my part, it is possible that a similar one has affected other minds. I write this to ask, if it be not already the attention of your Journal so to do, that you will publish the report of the commission and the reply of Dr. Stevens in full. I hope I am not seeking too much, for it seems to me to be in the interests of fair play that those of us who have been assailed as being behind the age, because we have never been able to accept the doctrine that epilepsy and chorea are cured by operations on the muscles of the eye, should not now be deprived of the support of evidence of an impartial commission, which has presented a report overwhelmingly in favor of our side of the question.

D. B. ST. JOHN ROOSA, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN NEUROLOGY.

Meeting of November 8, 1889.

DR. LANDON CARTER GRAY in the Chair.

Chronic Delusional Insanity; Paranoia.—DR. MATTHEW D. FIELD reported the histories of cases of this affection as follows:

CASE I.—W. E. L., male, aged twenty-nine, a photographer. The patient was committed for examination as to his sanity by Judge Murray on July 3, 1888. The history was obtained from his sister. The patient was the youngest child of a family of four children. His father was twenty years older than his mother, being fifty-six years of age when he died. The patient's father had suffered from consumption for several years, and had died a few months after the birth of the patient. During pregnancy with this child the mother had been severely taxed physically by the care and nursing of a consumptive husband. The patient had been a weak and sickly baby, and, until after the age of two years, had not been expected to survive. He had received a fair school education, but had never displayed any force of character. The only intimate friend he had ever had became insane some years ago, and was now an inmate of the Bloomingdale Asylum. On account of his delicate health the patient had been petted and indulged, and had never been able to support himself. From boyhood he had been solitary, moody, and irritable, having outbursts of passion from slight causes. Shortly after attaining his majority he went West, where he had remained some eighteen months. His family had known little of his life during this time. When he came home he brought some photographic apparatus, and said that he had acquired that art while away, and had the ambition to become an artist. He stated that he had been victimized and cheated while away. He became more moody than ever, and was sociable with no one, except one of his sisters. At times he would become much excited and harangue, his theme being usually religion. Curious pictures of his own production were found in his room, representing heavenly visions he had seen. He talked to his sister about the star of Bethlehem, and was often found gazing at the sky. He would point out a star and say: "That is the star of Bethlehem; that is my star." He frequently refused food, and said that God fed him. He asserted that he was ordained to perform certain things for the good of the world. He now began to talk more strangely, and the family learned that he had been arrested for creating a disturbance on the street. The patient had a weak face and a silly and pompous manner, poor physique, narrow and highly arched palate. The patient stated that he had been arrested for preaching on the street and attempting to stop the street cars. He had not directly interfered with the cars, but had shouted to the drivers that they were breaking the Sabbath and that the wrath of God would descend upon them, and that he had been commanded to warn them. In 1886 the patient saw three visions. He said they were revelations from God, and that in these visions it was revealed to him that he was to reform the world. These three visions had appeared early in 1886, and had never been repeated. His description of the visions was much confused, but he said he could represent them better by drawings. [The sketches made by the patient were exhibited to the meeting.] In the corners of the drawings the patient had written an explanation and description of the visions. The patient's family took him home and cared for him until September, 1887, when he was again committed for examination. His mental condition had changed but little. The same delusions existed, and the connection with the three visions was just as apparent.

This case had seemed to Dr. Field to be an interesting one of systematized delusions occurring in a feeble-minded individual, where the delusions followed and were built upon vivid visual hallucinations that had never been repeated. It was the experience of the reader that visual hallucinations were rare in cases of paranoia, and it was still more rare to find them the standing-point of delusions not yet repeated. It was more usual to find auditory hallucinations, and to have them continue and to be

come prominent factors in the delusions. He recalled, however, one other case—that of a man who had attracted considerable attention in New York a few years ago. In his case there had been a single vision, not repeated. This man could give not only the date, with the hour and minute of its appearance, but its actual duration. From the moment of this single vision he had been an altered man.

CASE II.—S. D., aged thirty-eight, married, an inventor. The family history on the paternal side was good. The father was a man of education and marked ability, but was intemperate. On the maternal side the mother was consumptive, and the grandfather and grand-uncle insane. The patient was the youngest of four children. The elder sister was a rounded character in everything—educated, refined, and practical. The next was a brother, who was odd, a good thinker, but, from his family connections, noticeably weak in character. This brother's children were markedly bright and capable. The next sister was certainly peculiar. She made much of little matters and was very erratic in actions and conversation, but was at times very entertaining. The patient was a man of magnificent physique. He had displayed marked ability from early childhood. He was considered a genius, was eccentric in some ways, and was always a poor business man. His inventions had given him a world-wide reputation. He was an erratic worker. It was difficult to get him to perfect his inventions, as, after demonstrating the principles, his interest would diminish. Some four years ago he had undertaken the management of a company where he had had much executive and business work to do, as well as the exercise of his own profession. This work had greatly harassed him and he became very irregular in his mode of living. Sleep was interrupted and he drank freely, though rarely, if ever, to intoxication. He became much run down physically, and it was thought best that he should take a rest. He started for Europe with his wife early in December, 1885. Almost as soon as the steamer left the dock he exhibited delusions of persecutions. He became suspicious of everything and everybody, and declared that there was a conspiracy to destroy him. He interpreted every action of his fellow-passengers as relating to himself. When several would be conversing anywhere he would feel sure that they were talking about him. He continued to travel, and every new sight and face suggested some new idea of persecution. After a few weeks his wife induced him to return home, which he seemed glad to do. On the return voyage his delusions became so active as to attract the notice of the other passengers. The patient was seen immediately on his arrival by the speaker, who found him almost completely given up to the contemplation of these delusions. When confined to his own home, where everything was familiar and where no strangers were allowed to see him, he was quite calm and free from these ideas, was a pleasant companion, and ate and slept well. One day the patient called at the office of the speaker and wanted the roof of his mouth examined, which was done, and a small sore discovered, the nature of which was explained to him, but he declared that it was a chancre and he knew just how he had contracted it. While on shipboard he had observed that his cigars were always given him out of a particular box, and that those cigars, infected with syphilis, had been prepared for him. He had been suspicious of the cigars, but had not been able to divine their designs until now. The explanation of this delusion was that the patient had seen a copy of the "Medical Record" that had contained an editorial on the lewd pictures of cigarette girls that were then conspicuously displayed in all of the cigar stores, and remarked that girls who would allow themselves to be photographed in such positions would be likely to acquire venereal disease, and added that it was well known that syphilis had been conveyed in

cigars. This was sufficient to convince the patient that the sore in his mouth was a chancre. When it was found that the patient was much more comfortable in his own home, a young man was found to act as a companion and keep a constant watch over him. A workshop was built at home, and here he continued his inventions and made his own models. He had continued to improve up to the present day. The speaker had observed the progress of this case, and no sensory hallucinations had been manifested; there had never been delusions of grandeur.

CASE III.—H. F., aged fifty-eight, married, clerk. This patient came to Bellevue Hospital on May 4, 1888, and asked to be sent to the Island. He was much agitated and declared that he had syphilis and had infected his family and visitors to his house. He declared that he had lost all his manhood and that he had the "blot on the brain." He wanted to be sent to the asylum, for he was sure his sons would murder him when they found out how he had wronged them. His sons had taken him home and tried to care for him. On May 22, 1888, the patient had again come to the hospital and begged to be sent to the asylum. He had expressed all the delusions as on the first occasion. He was again taken home. In July, 1888, the patient had come again to the hospital and fairly begged to be taken in. He had told how he had escaped from home by climbing out on the roof and making his way to the street. When it was decided to admit him, he quieted down and seemed much relieved. The patient had declared he was about to die, as the syphilis was consuming him. He believed that his sons had general paresis due to infection from him. The patient probably had had syphilis, but there was no physical evidence of the disease. He was sent to the State asylum at Middletown, N. Y. Under the date of November 26, 1888, Dr. Talcott wrote the speaker that the patient had not changed very much in the character of his delusions until within the past two or three weeks, when he had become more irritable and suspicious, and thought there was a conspiracy to keep him in the asylum. The delusions in this case were systematized and had existed for a long time, certainly six months, almost unchanged. Though hypochondriacal in character, they were logically reasoned out from his false conceptions of syphilis, and upon this all his delusions were founded.

Morel in 1852 had given some observations on the transformation, among the hereditary insane, of hypochondriacal ideas into ideas of persecution and afterward of grandeur. Krafft-Ebing distinguished two kinds of paranoia. First, that with delirium of persecution, which he fully described with its three stages of hypochondria. Second, that of persecution and grandeur and its sub-variety, "quarreling insanity." The speaker thought it would be interesting to learn if this patient developed ideas of grandeur in the future. He did not want to be understood as advocating the classification of this case under the name of paranoia, as he thought the term was being made too comprehensive by some. The patient's age was certainly against paranoia. It was to be regretted that the family history could not be given.

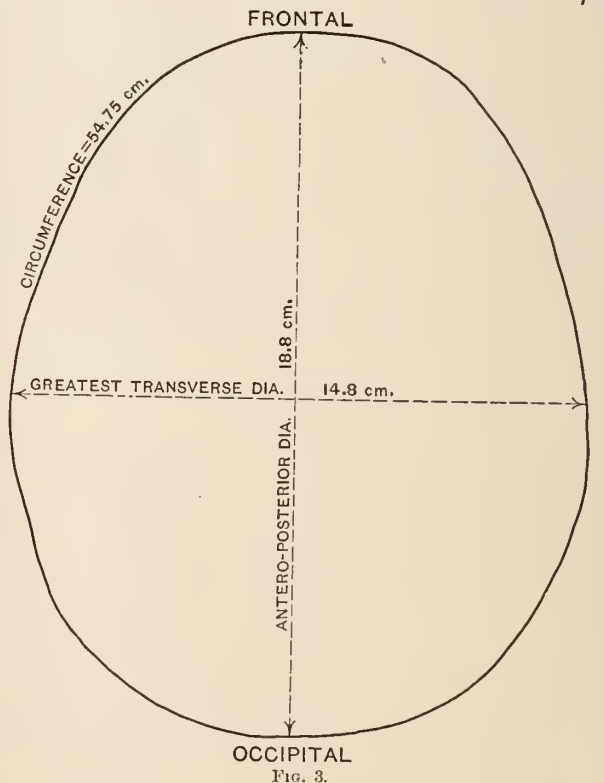
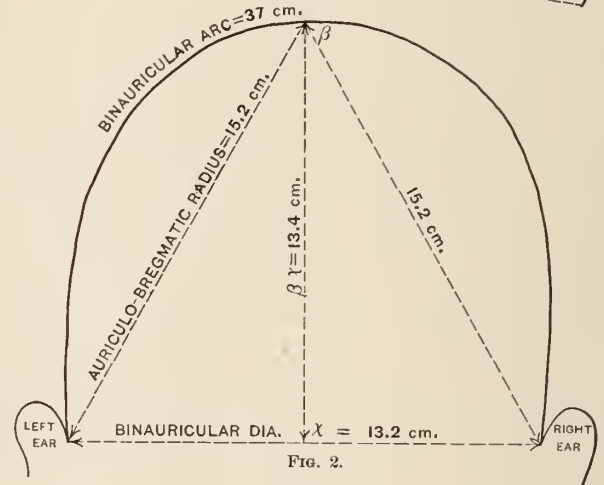
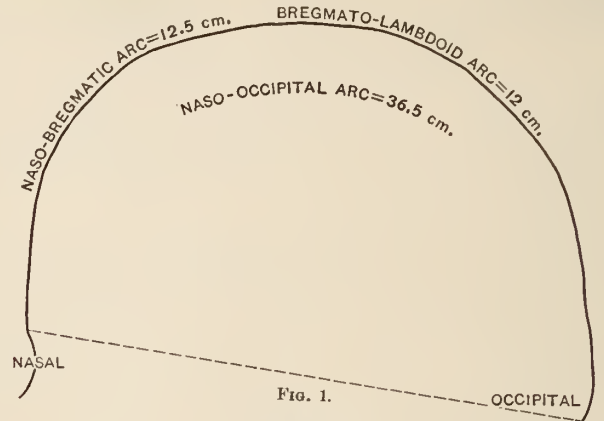
CASE IV.—Mary L., aged fifty-six, single, domestic. No family history. On admission to the hospital the patient was in a filthy, neglected condition. She resisted all interference. She said that "her husband was an officer in the upper land." "He first presented himself to me on October 1, 1868." She did not see him when he first presented himself, but was told by God's voice that on the next Sunday he would sit beside her in the pew in church. The next Sunday, October 4, 1868, she saw him in the seat with her, and she described his personal appearance. She had been and was still waiting for her husband to come with a procession and carry her away, as he had

promised to do. At times she was quite incoherent, and spoke of her father being the Heavenly Father's grandfather, etc. In this manner, and by her indifference to her surroundings and neglect of her person, she displayed much dementia. When the duration of the delusions was considered—*i. e.*, twenty years—the dementia was slight. In this case the hallucinations were auditory and were the foundations of the delusions, and continued to form a very important feature of the disease.

CASE V.—James M. D., aged thirty-three, single, canvasser. No family history, except from the patient. From his account there was no hereditary insanity. He said that he had always been considered eccentric. A lineman who had known the patient some three or four years ago stated that D. then talked much of one of the leading actresses, and believed that she, as well as many other ladies above his station in life, was in love with him, and that they were constantly making overtures to him. He was suspicious and egotistical, and would think that the actions and conversations of others related to himself. He seemed to have a fear of detectives, and would often leave his work and disappear. His own account of his life was that he had received a common-school education, and when a mere boy had started out to care for himself. For some time he had worked in a factory, and finally went West and was a prospector, and then a miner. In the mines he had made a few thousand dollars, but asserted that he had been cheated out of a fortune. Then he was a telegraph operator, and then a lineman, and lately had been canvassing for Appleton's "Cyclopædia." For years he had been trying to study and explain all natural phenomena, and was writing a work that was to elucidate all such subjects—such as the creation of the world, geology, astronomy, chemistry, etc. He believed that he had been very attractive to ladies, and that they had followed him about in disguise. He assured the speaker that he could have married ladies of rank and fortune. After the presidential election four years ago the patient had sent to Mr. Cleveland a long congratulatory telegram and volunteered his services. The patient had said that he had first seen Miss A. some six years ago, and that he had fallen in love with her and she with him. He had followed her about, as her protector he said, from place to place, and two or three times to Europe. He had never attempted to speak to her but once, and that was when she returned from Europe last September or October to fill her professional engagement in New York. The patient began at once to besiege the lady with letters and frequent calls at her hotel. On the 14th of November he was arrested, and was seen on the following day by the speaker. The patient conducted himself with quite an air of importance, and was much puffed up by the space the newspapers gave to him. He wrote a long statement for publication, which he desired to appear just as he had written it, and he wanted to correct the proof himself. When arrested he was armed with a self-cocking revolver, with five chambers loaded. There was also found in his pocket a sheet of letter paper, at the top of which was the word "Notice," and below was written, "Some time I may be found dead or in a trance; if so, you can safely say I have met with foul play at the hands of A. and that gang. P. S. No matter where my body may be found, ship it to Miss A. She will see that it is interred, and will attend to all the funeral arrangements." The speaker exhibited to the Section the photograph of the patient, and also tracings of his head, which had been made by Dr. Frederick Peterson.

The speaker then read some abstracts from the patient's statements of his own case.

"Piqued Jimmie & Mamie. M. A. visits this country on the sly to see D. After her Jimmie, while supposed to be in a convent in London. Passing over the earlier portions of our



CEPHALOSCOPIC DRAWINGS OF THE HEAD OF AN EROTIC PARANOIAC.

- FIG. 1.—Departure from the normal proportion in the naso-occipital arc, owing to great vertical height of skull.
- FIG. 2.—Vertical measurement $\beta \chi$ is excessive, and a pathological variation from the normal.
- FIG. 3.—Shows asymmetry of the skull in horizontal circumference, the right frontal segment being greater than the left, and the left parietal segment greater than the right.

love affair, which, tho interesting to us, might weary the reader. While in Liverpool, on my last trip to England, I was severely poisoned in a glass of liquor in the 2nd Class Refreshment Room of Northwestern R. R., Line St. Station, its effects were very severe but I managed to cure it well enough to take care of myself. The impaired stomach caused by this drugging run me so low in vitality that I fear'd that I would not live to see this November So I wrote Miss A. bidding Her good bye, telling Her I probaly would not Live to see Her again. This was some time about the latter part of July last. About the middle of August I attended St. Paterick's Church in Washington to vespers. As I came out after services a womans voice sounded: 'OH! what can I do when he wont speak to me.' I may here state that from the first Miss A. refused to be formally introduced to me or answer my letters. But seemed anxious to form my acquaintance in a More Romantic way. * * * I now felt certain of her, but made up my mind to let Her run awhile, as she did me in London. That night I was sitting in my room when I heard the gruff voice of a man outside the door of the House opposite say 'You can't ever Make anything out of That dude; let 'em go.' a voice like Miss A's answered 'Cheese it. He's onto us watching Him. She evidently was standing with Him as He uttered his advice, and She spoke Her reply as She dodged into The House. I at the Time Turning to look at Them. It was quite dark so I could not recognize what the Man was like, but from his voice believe He was a short thick-set Florid, 'Duffer like' Man, such as I seen with Her afterward in the Temple Cafe'. She then evidently took a trip away for a few Days for I heard the same young womans voice which did The Mantering in the carriage say the following evening 'I dont know what sbe wanted to go away for. Shes just as crazy after Him as She can be' adding 'of course she is' to a grunt from an Elderly Man, Her Companion. This Man then in an irritable old Honest Farmer like voice said 'These actresses are a poor lot, Theyr Frauds all of Them, not only that but Theyr mean' following it up with a Tirade against acting in general. 'The next I heard of Her was Three or four evenings afterward. while sitting in my Room. picking up Her picture, gazing at it for a time, finally ending by kissing it. as I did so There was a couple of little Jestng Laughs from two females in The House opposite. and 'ha My picture. maybe He wont like Me when he sees Me,' in a sort of Happy uncertaiu subdued voice from our M., who evidently was sitting with Them watching us. . . . I Then went to the Sisters orphan School near by and asked one of them to undertake the task of arranging a meeting between us. But the Sister only looked incredulous and said it was worse than a Fairy Tale, and said if Miss A. had come to Washington it would surely be in the papers. I Tried to explain to her that under The circumstances it snrely would not be in the papers, and that I would pay Her for The Trouble. * * *

"The last I heard of Her she said 'Ill speak to Him any way and if he loves me Ill take Him Home with me.' I thought I had conquered but she evidently changed her mind or it may be that the opportunity did not occur and That she was forced to go in a hurry to attend to business or catch the slip to return and fill her Provincial Engagements in England, and upon sober thought coupled with the urgent advice of Friends concluded That as I was broken the best thing to do was to give me up or she may be suffering from a bit of pique at my seeming intentional slights. I meant the Most Honorable in The world toward M. but sought to break Her Terrible Self Will. I have broken Myself instead, while Mary Sails on as of yore as a 'Ajax Defying the Lightening.' * * * After this Terrible expose I feel That all must ever be over between us, and fully realize my great loss. She has Trivial vices that cling to Her from Her

surroundings as a smoky odor. To the one who Works among it but the mind of the woman is as far Her surroundings as Heaven. Purgatory. The current belief that Mary is a piece of Marble is all wrong. She appears as cold as the cloud crested volcano to the verdant grassy Hillock as is M. compared to other women. She has possessions as Herself so far above The ordinary That the ordinary cannot understand. They watch and like but dont understand, passion, she is filled with passion and riven unknown, but the surges of the woman Heart can never do more than gurgle through and soften Her nature. The wondrous mind is ever in control. I shall feel My loss and believe M. will remember Jimmie. D.

"If the mere fact of my Running after my sweetheart without the formality of an introduction constituted a sufficient reason for my being considered insane. I am satisfied that More than Half of the now married men, have deserved this punishment at some period of their lives, also if such were the Case Mary as I show above should be sent to the Island in the same Boat with myself. if however She is suffering from a fit of Pique over my supposed slights, in Justice the statements here made should be looked into and if found True, I can only see that I have err'd more in omission than commission. That she was recognized by many during her stay in Washington I feel assured. * * * If however all that I have stated are conjured phantoms of a diseased Brain Then I am only too Thankful that I live in a country where such good institutions are provided for my welfare and shall only be happy to avail myself of the privilege of entering such. If my Brain is really affected it is probaly due to excessive study in trying to raise myself to position that would enable me to make my advances towards my M. from at least a somewhat equal station, as during the last five years I have been furthering a set of discoveries that will mark an epoch in the advance of Natural Sciences, in a Book which I am now preparing. I will give a Theory on the probal forms of Atoms. An Hypothesis on the structure and action of Molecules together with an explanation of the causes of Molecular Motion. * * * My Manuscript as it now exists in its unfinished state will lead the casual investigator to but more thoroughly believe in my insanity. I humbly ask That it May be saved and given to me if I be put in the asylum That I may finish it before my Brain is totally gone. My private letters from my Friends and relatives have been destroyed as 'Trash.' They appear so to the authorities but They were not Trash to me. If my Investigators will but give me the benefit of the doubt till proven iusane, if They will look through History and find examples numerous where men not understood, were termed 'Cranks' subjected to various tortures, although they helped posterity, which now Honer Them with monuments for my own part I would much sooner have the grasp of a Friendly Hand now than a Million Dollars Monument by posterity. J. M. D. Bellevue Hospital, November 17, 1888."

In this case the delusious of grandeur had been developed slowly and had continued for years with but little change. Delusions of persecutions had appeared, but they had developed from those of grandeur and were in every way conditional upon them. The late appearance of the hallucinations was rather unusual. The exaggeration of the *ego* displayed throughout was very characteristic of paranoia. This case was not unlike Esquirol's estomania, a subdivision of monomania. According to Esquirol, this perversion was not necessarily accompanied by animal sexual desire, and the adjective erotic was here used in the classical sense. The patient noted in his adolescence for his romantic tendencies, construed an ideal of the other sex in his day-dreams, and subsequently discovered the incorporation of this ideal in some actual or imaginary personage, usually in a more exalted social circle than his own.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN THEORY AND PRACTICE OF MEDICINE.

Meeting of November 19, 1889.

Dr. R. C. M. PAGE in the Chair.

The General Therapeutic Action of Electricity.—Dr. A. D. ROOKWELL read a paper on this subject. He thought that few who were now using electricity in the treatment of disease stopped to consider the effects of the passage of currents through living tissues, or upon what was based the *rationale* of every electro-therapeutic result. The literature on this subject had accumulated beyond measure, but still showed so little correct appreciation of its physics that it was necessary to emphasize the statement again and again that electricity was not a simple, single manifestation of natural force, but that it was a generic term, which included complex phenomena with wide variations and manifestations. Electricity was, according to the speaker, a stimulant of the most powerful character, and an irritant when this side of its nature was sought after. As a sedative, in some cases it was unequalled. Admitting the recognized significance of the word tonic, and that remedies for improving the tone of the system still held an important place in the classification of the *materia medica*, it was the opinion of the speaker that electricity should be classed as a tonic of very high order. It possessed varied influences of this kind, according to the kind of current used and the method of its application. To produce that tension of the nervous system and of the muscular fiber generally, so as to enable them to respond to their natural stimuli, the mechanical effects of the faradaic current seemed to be especially applicable. This was a current of alternation, with a to-and-fro motion, dependent on the closing and breaking of the current. Unlike the galvanic current, it possessed no chemical action which need be feared, and no powerful reflex effects need render one unduly cautious in its use. In the passage through the body of a current interrupted with the requisite degree of rapidity, it need produce no appreciable muscular contractions, yet it gave passive exercise to all the deeper layers as well as to the superficial muscles. Aside from the purely mechanical effects of the induced or faradaic current, there seemed to be a more subtle influence upon the nerves themselves. No purely mechanical influence could produce the numerous phenomena that followed its use in some diseased conditions. In the tedious period of convalescence from the protracted fevers, electricity in some of its forms had done good service. It gave passive exercise to the muscles; it promoted and rendered more natural the processes of secretion and excretion; it corrected circulatory disturbances, and gave tone and strength to both nerve and muscle. The writer said that those who had failed to get good results in the use of electricity were either deficient in experience, or were not sufficiently persistent, or had somehow failed in the technique of application. Some of the results in electro-therapeutics were due in a measure to physical effects. Judging from analogy, as well as from facts, there could be little doubt but that an appreciable degree of heat was excited. All conductors of electricity became heated more or less, according to the degree of their resistance. As the body offered great resistance, a certain proportion of the electrical force must be converted into heat. The physical effect of electricity on metals was well known. It was said by some writers that the copper wires used to conduct the faradaic current broke more frequently than when used to conduct galvanic currents. The chemical or electrolytic action was practically confined to that form of dynamic electricity that was termed galvanism. Its visible effects occurred in the department of electro-surgery, when needles or pointed electrodes

were used. A distinction had been made, and justly, between electrolysis and galvano-chemical cauterization. The former was a disintegrator and separator of the constituent elements of organized structures. The latter produced its effects by means of the acids and alkalies that were liberated at either end of the pole by electrolytic action. It was the chemical galvano-cauterization, and not the electrolysis, that accomplished most of the good results that followed intra-uterine applications in cases of endometritis. The action of either current modified the physiological functions in various ways. It had been readily demonstrated how the secretion of salivary glands could be increased. Mucous secretions were very quickly increased by either current. In the writer's own experience, the electrical treatment had sharpened the appetite, quickened digestion, and relieved constipation so rapidly and decidedly as to make it evident that the gastric and intestinal juices were all made to secrete more liberally, and that the action of the current was on the nerves that supplied these organs, rather than on the tissues of the organs themselves. Among the affections of the bowels where electricity was quite certain to exercise a beneficial effect were those of defective innervation; also those diseases comprehended under the names of hypochondriasis and neurasthenia. Its influence over the circulation, on the arteries, veins, and capillaries was due to its power to increase the quantity and quality of innervation received by them.

Dr. C. L. DANA, in opening the discussion on Dr. Rookwell's paper, said that he should like to make special allusion to the therapeutical value of static electricity. In this form the electrical fluid, or ether, was in a state of stress or strain, and might be likened to a thin rubber band stretched to its utmost. When the strain was relieved, a disruptive discharge took place. According to another analogy, static electricity was like a thimbleful of water raised to an immense height; when spilled it gathered such momentum in its fall that a severe blow was struck. If the thimble was continuously filled and as rapidly emptied, we had a succession of static discharges which formed an intermittent electrical current. The electro-motive force produced by the fall was immense, being over 33,000 volts, but the resistance met was very great, and the quantity of the fluid small, so that the total effect, or current strength, was ordinarily not great. The static current, so called, was made up of successive and almost infinitely brief discharges from the positive to the negative, with accompanying numerous oscillatory discharges. A single disruptive discharge consisted of a principal discharge, or current from positive to negative, with numerous minor oscillations. By using small Leyden jars which filled and discharged quickly, this current could be made almost continuous, and could cause chemical effects. The intensity or current strength was the amount of electricity passing through a given space in a second of time. The static discharge occupied such a fraction of a second that its intensity or current strength was hardly measurable. But its voltage or electro-motive force was, as already stated, immense. The intermittent current produced was therefore a peculiar one. The muscular contractions caused by static electricity had been stated to be due to a purely mechanical effect. This was, in the writer's opinion, a wrong view to take, for the reason that the sparks caused contraction when applied directly to the muscle, while mechanical irritation sufficient to cause contraction of a whole muscle must be, under clinical conditions, applied to the motor points. Also because there was no apparent mechanical irritation in the ordinary sense when the static current was applied with wet electrodes. In the case of the spark there was a sudden expansion of the skin at the point of contact from heat, but no deep mechanical disturbance. It was thought the spark acted like the secondary current of a faradaic battery, causing no measurable electro-

tonic effects. The static electricity was applied in the form of a disruptive discharge or spark, in the bath and breeze, and by the current. The effects of the spark were well known, but the effects of the bath and the breeze had been inadequately stated heretofore. When a patient was seated on an insulated stool and charged, a series of discharges was going on from all points of the body. This produced a cutaneous stimulation and a mental effect. The cutaneous stimulation had in some cases a peculiar physiological and therapeutical effect. It was by no means psychical, but belonged to the same class of physiological phenomena as those of metals. The static current could be used with moist sponge electrodes directly through the clothes, or with wet electrodes upon the skin. This current caused contraction of the muscles. The special advantage of the static battery was in paralyzes with some spastic element, and in monoplegias and paraplegias. Outside of this, its best results were in chronic muscular rheumatic and myalgic conditions, also in sensory disorders.

Dr. J. H. GUNNING said that he did not propose to enter into the mysteries of electricity, but would simply give his experience as to its therapeutic action. His work in this direction had been principally confined to the use of static electricity. The faradaic current he believed to be very valuable as an emmenagogue and also as a sedative. Excellent results were got from its use, especially when given in conjunction with drugs in some forms of peritonitis and in some forms of obstinate vomiting. The results of his observations in the use of static electricity corresponded with those of Dr. Dana. He found that from the application of static electricity with the wet sponge directly to the nerve in certain forms of facial paralysis, instead of a treatment extending over five or six months, as necessitated by other electrical methods, the patients were entirely restored at the end of six weeks. He thought that the static form would prove most serviceable to the general practitioner. The galvanic method was of value as an emmenagogue and in cases of weak uterus where stimulation of that organ was indicated.

The Auriculo-ventricular, Presystolic, Sound.—A paper on this subject was read by Dr. H. D. CHAPIN. The presystolic, auriculo-systolic, or auriculo-ventricular murmur had been the subject of much discussion and acrid controversy. In 1841 Gendrin had called attention to a presystolic murmur, and Fanel in 1843 considered it to be due to mitral obstruction. This view seemed to have been accepted at that time, but some years later Dr. Barclay advanced the idea that a mitral obstructive murmur had no existence in fact, the sound usually attributed to this condition being really due to regurgitation. This dispute had recently been renewed by Dr. Dickinson, in the columns of the "Lancet," in 1887, who denied that the so-called presystolic murmur was indicative of mitral stenosis. The latter gentleman regarded the murmur as covering the first portion of the systole up to the point of closure of the valve, and named it rather an early systolic murmur. Gairdner, Balfour, Bristowe, and others had vigorously replied. Dr. Bristowe had summed up the arguments in favor of the presystolic nature of the murmur as follows: 1. That it accorded with the physiological fact of the auricular contraction running with the ventricular systole, the beginning of which was indicated by the very sound that terminated the murmur. 2. That the murmur preceded the pulse and ended with the apex beat. 3. That the presystolic murmur did not differ in quality from the earlier mitral murmurs which were acknowledged to be direct. 4. That all the direct mitral murmurs were characterized by consonated noisiness and lack of penetrating power, and were audible over a seriously restricted area, but were not conveyed into the axilla as all regurgitant mitral murmurs were. Finally, post-mortem examinations not infrequently revealed a condition of stenosis of the mitral valve.

Dr. Chapin's conclusions had been derived from clinical studies alone, and were intended to be suggestive rather than dogmatic. He said a presystolic or auriculo-ventricular murmur was produced by some interference with the normal and easy passage of blood through the auriculo-ventricular septum or valve. The murmur was rough in quality, beginning at the end of diastole and ending abruptly with the systole. In rhythm it might be considered metadiastolic as well as presystolic. One of the most characteristic points about this murmur was its abrupt termination. This quick stop of the abnormal bruit was very different from the gradual ending of a mitral regurgitation murmur. Almost all of the authorities the speaker had been able to consult considered that the presystolic murmur was invariably due to organic disease at the mitral valve. There was a class of cases, however, in which this sound was distinctly heard, which the speaker believed to be entirely free from organic heart disease. The class referred to was that of growing children, especially girls, who were pale and hydræmic and suffered from various digestive disturbances. These cases were not only subject to palpitation of the heart, but at times, especially after exercise, a more or less rough presystolic murmur might be heard at the apex. Many of these children had been confined for a long time in crowded or badly ventilated school-rooms. Possibly they were over-ambitious in their studies, but, at any rate, were in a condition of defective nervous equilibrium. Under treatment with iron, cod-liver oil, nutritious and easily digested food, with plenty of fresh air, the abnormal heart sound had often disappeared. It had seemed to the speaker that the trouble in these cases was due to an irregular muscular action, dependent upon a defective innervation of the heart. Weak children had an especial tendency to a faulty, over-irritable action of the muscles, both voluntary and involuntary. This might show itself in the incontinence of urine, or by twitching of certain muscles of the face, or it might eventuate in general chorea. Why might not the innervation of the heart be affected with or without any of the disturbances just mentioned? In such a case an irritable, strongly acting auricle, with a mitral valve whose muscles were too tense, might be a cause of a flubbering sound just before the systole. The sound produced by any such irregular muscular action would be intensified by the watery condition of the blood. Undoubtedly a large proportion of cases of presystolic murmur were due to organic valvular trouble. Meigs and Pepper stated that mitral obstruction was comparatively frequent in childhood. Goodheart considered that in children under eight years of age this lesion was almost unknown, but with advanced years the affection became more common, and was one of the most frequent affections of adult life. Eustace Smith considered that mitral stenosis unaccompanied by insufficiency of the valve was not common in the child. The speaker had in his possession the histories of forty cases of mitral stenosis that he had been able to keep under observation for different lengths of time, varying from a few weeks to several years. The ages varied from two years to that of adult life. In thirty-one of the cases there was simple mitral obstruction, while in nine cases there were combined murmurs. Of the latter, five were double mitral, three were double aortic and double mitral, and one was a combined mitral and pulmonary obstructive murmur. The commonest symptom of slight degrees of mitral obstruction that the speaker had noted was that of pain and dyspnea on exertion. The pain was directly referred to the region of the heart. It seemed as if the labored action of the heart to pass the blood through a partially constricted auriculo-ventricular septum produced a neuralgia in some of the adjacent nerves. A slight dry cough was more or less frequent. The speaker thought that a careful examination of the heart would explain a certain proportion of cases of obscure developmental trouble and poor

vitality in children that could not otherwise be accounted for. It was interesting to note the connection of this murmur with rheumatism. Out of thirty-one of the speaker's cases, twenty presented evidences of rheumatic taint. From the records of the London Hospital for 1880, only fifty-eight per cent. of the cases of mitral stenosis presented a history of rheumatism, while seventy-seven per cent. of the cases of mitral regurgitation were rheumatic. In 1886 the speaker had read before the Academy his conclusions based upon a study of seventy-six cases of rheumatism in children. Of this number, twenty-six patients had had valvular disease of the heart. Of the twenty-six, only four had presented evidences of mitral obstruction, while eighteen had had mitral regurgitant murmurs. In making a diagnosis of the mitral direct murmurs, it was well to remember that they often varied in intensity according to the action of the heart. It was the custom of the speaker to have the patient jump up and down in a vigorous manner before auscultation in any suspected case. If we regarded the prognosis of mitral stenosis from a theoretical standpoint, it would not be good, owing to the comparatively limited compensation that was possible; but, as a matter of fact, the prognosis was believed to be exceedingly good. The only instances of death in these cases that the speaker knew of were in those who had had regurgitation combined with the stenosis. But most of his cases had been in young children, when death from any form of cardiac disease was not common. The treatment should be hygienic, with tonics if required. These patients had best be kept under observation so as to meet indications as they arose, just as in any other form of cardiac trouble.

It was frequently the experience of physicians to be called upon to treat cases of valvular disease of the heart when it was impossible to trace back to the inception of the trouble. The patient might not be able to give a history either of rheumatism or endocarditis, but sought advice for dyspnoea, swelling of the extremities, or other symptoms of failing circulation. It was the opinion of the speaker that a large proportion of the cases of valvular disease in the adult had begun in childhood. The beginning of the trouble, which was the most hopeful period for treatment, was overlooked for a number of reasons. The nature of the rheumatism that attacked children was often obscure, and several attacks of wandering or so-called "growing pains" might be overlooked. In most of the histories of valvular disease in children the cardiac affection seemed to come on after several attacks of rheumatism. Great care should be exercised to make an early diagnosis, and vigorous measures taken to combat the first manifestations of rheumatism in children, fearful that, although the heart might escape the first mild attack, it might suddenly and unexpectedly become affected by an equally light manifestation of the disease. When endocarditis ensued, the symptoms were apt to be very obscure. Palpitation, slight pain, and breathlessness, with a dry cough, might not be particularly noticed by the parents, although the child would seem sicker than before. These patients were often taken to the dispensaries, and the mother would be quite surprised to learn that her child had incipient heart disease. Just at this juncture rest was indicated above all things. If this was not procured, the delicate, softened heart muscles quickly underwent dilatation, followed by permanent damage to the valves. Dilatation very readily took place in early life. Compensative hypertrophy, however, quickly ensued, although there might be no sign of it until years later. By recognizing the endocarditis at the start and keeping the child quiet, we might reasonably hope to avoid dilatation and consecutive crippling of the valves.

Dr. ANDREW H. SMITH said he was not one of those who believed that there was any essential difference between a dias-

tole and a presystolic murmur. He thought the same conditions existed in both, the difference being only in the degree or character of the obstruction at the auriculo-ventricular opening. If this was greatly narrowed or irregular, a murmur would result which would be audible in diastole. If, on the other hand, the obstruction was not very great and the irregularities were not marked, and there was a comparatively easy flow of blood during the quiet part of the diastole, no murmur would exist until the current was quickened by the auricular systole. A great many murmurs were credited with being presystolic which were in reality systolic. The difficulty lay in defining at what instant the systole began. It was now universally recognized that normally the first sound of the heart occurred at the first instant of systole. It had been said that before the first sound there was still another murmur, but this did not necessarily precede the initial action of the systole. Frequently this was of a soft character, and disappeared after a brief duration. It occurred in cases where the muscular walls of the heart were defective, and where there existed a certain amount of dilatation, and it was not difficult to arrive at a definite explanation of the condition of things. If the normal diameter of the ventricle was represented by four and the length of each of the opposite chordæ tendinæ by two, then, in the event of any weakness in the heart muscle, the diameter of the ventricle was increased to five, while the sum of the length of the chordæ tendinæ remained four at the moment of systole. When the chordæ tendinæ were tense, a space would be left equal to one; so that, with the diameter of the ventricular cavity as five and the combined length of the chordæ tendinæ as four, coaptation of the valves could only take place when, in the progress of the systole, the former was also reduced to four. The resultant reflux of blood would then give rise to a murmur which would have the character of a presystolic murmur, though really systolic, and he believed many of these murmurs were of this character. It had been asserted that in these cases there existed a permanent systolic murmur due to dilatation of the auriculo-ventricular ring, so that the curtains could not reach across the increased diameter of the auriculo-ventricular opening. That applied more to permanent cases, and in that class it would be found that the murmur was distinctly systolic—a first-sound murmur. He had been much interested in what the author of the paper had termed the tolerance of children to this grave lesion. As an instance of this he would cite the case of a boy of three years and a half of age in whom the murmur was so loud and harsh that it could be heard two or three inches away. He had apprehended the most serious results, but as time went on nothing happened, and the boy was now about ten years old and seemed to be very little inconvenienced by his heart lesion. The murmur was still there, however, but very much modified in intensity, and could not be heard unless the ear was applied to the chest.

Dr. W. H. KATZENBACH said that as to the frequency of mitral obstruction murmurs his experience accorded with that of the reader of the paper. He had lately analyzed carefully murmurs occurring with the systole of the heart. He had found that out of one hundred and twenty-eight cases of mitral obstruction murmurs, sixty-seven were in combination with mitral regurgitation. He had met with this murmur in comparatively few young children, but it was frequent in young women averaging about twenty-three years of age. He thought when doubt existed as to diagnosis, comparison of the aortic and pulmonary sounds would sometimes aid in forming a conclusion. Change of position or a moderate amount of exertion would frequently make this murmur quite intense. In mitral stenosis one symptom was often met with—namely, spitting of blood; in advanced cases especially this often took place.

Dr. A. L. Loomis said he had not supposed that any doubt existed in the minds of experimenters on the question of presystolic murmurs. There had been a time when this point might have been raised. He had been accustomed to divide presystolic murmurs into three classes—the anæmic, the congenital, and those that were due to chronic endocardial conditions. The anæmic murmurs were unquestionably produced in the same way as in the cavity of the heart. These murmurs would be present for a time, disappearing to return again. Congenital mitral stenosis was not of infrequent occurrence. He remembered an instance where a murmur from this cause, with a purring thrill, was quite distinctly present in each of three sisters, whose ages ranged between eight and sixteen. From neither of them had he been able to elicit anything which would lead to the conclusion that the murmur was developed after birth. It seemed then that there certainly did exist a congenital mitral stenosis which did not interfere with the comfort of the patient. In children the heart sounds, it must be borne in mind, were intensified and slight murmurs would sound very loud, from the thinness of the chest walls and the comparatively greater area over which the sound was distributed. Consequently, murmurs heard in children sometimes seemed very terrible. As to the murmurs due to endocarditis, it seemed to the speaker that any one who had observed these during life and noted carefully the post-mortem appearances would not hesitate to conclude that the adhesions of the valves giving rise to the “button-hole” slit was sufficient pathological change to produce them. There were several varieties of systolic murmurs—the presystolic, systolic, and metasytolic. A pure systolic murmur was the one which we had in mitral obstruction with regurgitation, whereas in pure mitral regurgitation without any obstruction, the first part of the systole would probably be heard, and then the murmur came later, and was metasytolic. After all, it seemed to the speaker that a great deal was heard about cardiac murmurs, but the really essential point for consideration was the cause of cardiac diseases. Still, as had been stated, some conditions of the heart seemed to exist, giving rise to heart murmurs, which, however, did not in any way interfere with the patients and which did not appear to have any pathological significance. Every family practitioner was familiar with the occurrence of endocarditis in children of rheumatic habit or heritage, and who developed the endocarditis before the signs of the rheumatic dyscrasia manifested themselves. Pericarditis and endocarditis occurred frequently and simultaneously in some children. When the possibility of infectious diseases was considered as a cause in producing endocarditis in children it would be seen how common it must be for them to have inflammatory heart complications. If the nutrition and general health were preserved, and adequate compensation was established, many of these patients went on to middle life before any symptom arose indicating valvular changes.

Dr. H. N. HEINEMAN gave the statistical results of a large number of cases in which he had made careful analyses as to the exact character of the murmurs. The observations had included 300 adults and 153 children. He found that $\frac{2}{9}$ of the cardiac murmurs in cases of the children were mitral obstruction murmurs, while in adults the proportion was only $\frac{4}{5}$. He would like to know what became of the patients with these presystolic murmurs. He thought that no cardiac affections should be diagnosed by the character of the murmurs present, but rather by combined signs, such as changes in the size of the heart, changes in the valves, and the sphygmographic tracings. He thought that from what had been said it must be accepted that there existed such a thing as a presystolic murmur, that it occurred most frequently in children, and that though it apparently disappeared, it did not really do so, but became, in

later life, merged into some mitral and aortic lesion and thereby lost its identity.

Dr. E. G. JANEWAY said there was no serious doubt as to the existence of a mitral stenosis and of a mitral presystolic murmur indicative of it. After describing the theories as to the production of the cardiac murmurs under discussion, the speaker said that those cases in which mitral stenosis was marked and in which the murmur ceased had given rise to a great deal of argument. Any one who had watched patients with mitral stenosis for years would have noticed that they came and went from the hospitals, until they came in finally with various symptoms and complications, such as cirrhotic liver, dilated right heart, and dropsy. The presystolic murmur was, however, gone, and in its place would be heard a mitral regurgitant murmur. As regarded the murmurs due to dilatation of the ventricle, he was in the habit of classing these under the head of mitral systolic rather than mitral presystolic, as they occurred with the systole. Whether due to anæmia or to some weakness of the heart walls, causing temporary inefficiency, the prognosis in mitral stenosis was, in the speaker's opinion, by no means hopeful. It seemed to him that these cases disappeared because the patients died. Where it was possible to follow them up it would be found that many died suddenly.

The question was then further discussed by Dr. J. L. SMITH and Dr. THOMPSON.

The CHAIRMAN remarked that, while he would not dispute the fact that some of these many murmurs of which they had been hearing might be functional, still he felt bound to say that his experience led him to the conclusion that they were always associated with some organic lesion.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION IN PATHOLOGY.

Meeting of Friday, November 1, 1889.

The President, Dr. E. H. BENNETT, in the Chair.

Fracture of the Skull with Hernia Cerebri.—Dr. T. EVELYN LITTLE made a communication on a case of fracture of the skull, with hernia cerebri, in a child. The patient died on the fourteenth day in an attack of convulsions, there having been no symptom whatsoever pointing toward a fatal result until a few hours before death. At the post-mortem meningitis was found over both hemispheres, with an excavation in the frontal lobe corresponding to the seat of the injury.

The PRESIDENT said the disproportion between the injury to the bone and the injury to the brain was fully borne out by experiments, which had demonstrated the great elasticity of the skull in children.

Dr. SWANZY said the feature of the case which had interested him most was the symptom of the turning of the head toward the side on which the injury was situated. As Dr. Little had mentioned, that was generally associated with rotation of the eyes in the same direction. There was a conjugate deviation of the eyes and head toward the same side. But there might be one part of this duplex symptom without the other. In health a very discursive motion of the eyes to one side was usually associated with a motion of the head in the same direction; nevertheless, by a slight effort of the will it was possible to turn the eyes while the head was kept steady, or to turn the head while the eyes were kept fixed. Consequently one need not be surprised if in any diseased condition he occasionally found one part of this duplex symptom without the other. With regard to the position of this center of motion of the head and eyes, Ferrier,

by experiments made some years ago on monkeys, had satisfied himself that it was in the superior and posterior parts of the middle frontal convolutions. Some time afterward Grasset had argued from clinical observations that the site was in the inferior parietal lobuli. Later still the site had again been placed by Horsley in the frontal lobe. A few months ago Wernicke had ascertained to his complete satisfaction that it was situated in the inferior parietal lobuli; and now Dr. Little placed it in the frontal lobe.

Dr. LITTLE, in reply, admitted that there were different theories with respect to conjugate deviation of the head and eyes. As to the deviation in this case having been due to some more distant lesion of the brain, he felt some difficulty in adopting that supposition. Although the amount of brain substance lost was very considerable compared with the injury, still it was remarkably definite and remarkably local; and these circumstances were of importance in connection with the question of localization. To say that the lesion here might have produced symptoms of interference with centers in other parts of the brain was no more than what could be said with respect to any lesion, traumatic or from disease, in any part of the brain.

Renal Calculus.—Dr. J. K. BARTON communicated a case of renal calculus which had been successfully removed by operation. The calculus had been tightly wedged into the calices of the kidney.

Dr. FOOT asked if there had been any history of hæmaturia in the case. That symptom was an obvious one in the diagnosis of renal calculus; still he should not have thought it likely to occur here, on account of this being a fixed calculus.

Dr. BARTON, in reply, said the patient had no hæmaturia. The urine was faintly acid, but became alkaline after it had stood for some time.

Conjunctival Cyst.—Dr. J. B. STORY submitted a conjunctival cyst which had been removed from the eye of a baby aged six weeks. It was attached to the cornea and sent a band backward to the internal rectus muscle, from which it had to be raised by a strabismus hook. The cyst was a dermoid, and Mr. Scott exhibited microscopic sections of its wall.

Mr. Story commented upon the presence of these dermoid cysts in cases of coloboma of the lids, and dermoid bands uniting the globe to the skin of the face, and stated his approval of the theory of Van Duyse, who attributed all these defects to the existence of amniotic adhesions in embryonic life.

The PRESIDENT remarked that adhesions between the amnion and the surfaces of the embryo were the greatest cause of these congenital defects.

Tubercular Kidney.—Dr. HEUSTON submitted an example of tubercular kidney in a boy aged thirteen, which had been successfully removed by operation, and said there were microscopic specimens of the kidney on the table showing the giant cells and other evidences of tubercular disease. He had been unable, however, to detect in these specimens the *Bacillus tuberculosis*.

Miscellany.

The New York Academy of Medicine.—At the next meeting of the Section in Surgery, on Monday evening, the 9th inst., Dr. George E. Brewer will read a paper entitled "Accidents, Complications, and Results following Internal Urethrotomy in 120 Cases of Stricture," the subject to be discussed by Dr. F. N. Otis, Dr. R. F. Weir, Dr. F. R. Sturgis, Dr. A. G. Gerster, Dr. R. W. Taylor, Dr. L. B. Bangs, and Dr. Eugene Fuller; Dr. George G. Hopkins, of Brooklyn, will present a

eurette for the male bladder, and Dr. F. N. Otis will demonstrate the finished litholapaxy evacuator.

At the next meeting of the Section in Pædiatrics, on Thursday evening, the 12th inst., Dr. L. E. Holt will read a paper on "The Anatomical Characters, Nomenclature, and Treatment of the Diarrhœal Diseases of Infancy," the subject to be discussed by Dr. W. P. Watson and Dr. A. Caillé (the dietetic treatment), Dr. H. Koplik and Dr. A. Seibert (the mechanical treatment—irrigation), Dr. J. H. Fruitnight (the use of opiates), Dr. S. Baruch, Dr. H. D. Chapin, Dr. G. B. Fowler, Dr. J. E. Winters, Dr. A. Jacobi, and others.

At the next meeting of the Section in Neurology, on Friday evening, the 13th inst., Dr. Græme M. Hammond will read "A Contribution to the Study of Exophthalmic Goitre," and show a patient; and Dr. M. Allen Starr will read a paper on "The Relation between Peripheral Irritation and Nervous Phenomena."

ANSWERS TO CORRESPONDENTS.

No. 301.—We think the board is not now in session. Notices of the times and places of its sittings are published by us from time to time.

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

THE CARTWRIGHT LECTURES

ON

VITAL AND MEDICAL STATISTICS.

DELIVERED BEFORE THE ALUMNI ASSOCIATION OF
THE COLLEGE OF PHYSICIANS AND SURGEONS, NEW YORK,
November 14, 20, and 22, 1889.

By JOHN S. BILLINGS, M. D., LL. D., D. C. L.,
U. S. ARMY.

LECTURES III AND IV (ABSTRACT).

THOSE of you who are familiar with the history of medicine in the early part of this century will remember the great anticipations which were formed and expressed by prominent physicians as to the results which might be expected from what was called the system of statistical medicine, introduced in the Paris school by Louis and his contemporaries. This was not exactly a new system, but rather an attempt to methodize an old one—*i. e.*, to present the experience of different physicians in such a way that comparisons might be accurately made and the results mathematically expressed.

In this so-called numerical method all the details of each case observed are to be noted as far as possible without any special regard to whether these details may appear to the observer to have any special connection with the course of the case or its termination, or not. When a number of such cases have been collected, they are to be compared in all their details, showing in round numbers how many present such and such particular circumstances and how many do not.

In order to make a useful application of this method, it is of course necessary that the different observers shall be describing substantially the same thing; that is to say, the disease to be observed must present a definite series of symptoms, so that a person properly qualified will recognize its existence without any liability to error. It should also be a disease which follows a tolerably regular and definite course, having a commencement which can be recognized. Such forms of disease include the so-called specific diseases and acute affections of particular organs. The method is most applicable to surgical cases of all kinds, including those which come under the domain of the various specialties.

As regards details of pathological anatomy, it has been pointed out by Dr. Flint that the statistical method can only apply to those changes which can be appreciated by the senses after death, and that, there being but one constant lesion found in typhoid fever—*viz.*, the softening of Peyer's patches in the small intestine—the statistical method gives us little assistance in the investigation of the pathological condition of this disease.

We may note, however, that—if it be admitted that typhoid fever is due to a specific bacillus, as seems now to have been fairly demonstrated, and that this bacillus has been discovered and verified mainly by the application of

experimental methods—it is nevertheless true that the results thus obtained have met with a general and prompt acceptance, mainly because the application of statistical methods to the circumstances of outbreaks of this disease in different communities are in perfect accord with the bacillus theory of its causation.

This merely illustrates the general law that the experimental and the statistical methods must be used together, and that their results must be in accord to produce full confidence in the results obtained by either alone.

It must be admitted that the probabilities of error are much greater in medical than in vital statistics, and this for a number of reasons. The first is that no two observers examine or interpret a disease in precisely the same way, and hence it is extremely difficult to collect a mass of observations sufficiently large to form a basis for statistical reasoning. Those who wish to be scientifically accurate in the use of such material are usually compelled to deal with a very limited number of observations, because they can not obtain a large number upon which they can fully rely.

The best data are, for the most part, those which lie in the field of surgical observation, since here the symptoms observed, the methods of relief applied, and the results obtained are tolerably definite, and there is not likely to be much difference in the methods of recording them.

The methods of medical statistics differ fundamentally from those used by the vital statistician in that they usually have no relation to the phenomena observed in the normal, healthy, living population. The physician inquires, out of a thousand cases of children or of old persons that have been treated, how many times this particular disease has been met with; or, in a given number of cases of this disease, what proportion have died. This method is in fact practically the only one which is available to the physician, but the vital statistician, if dealing with disease, will want to know the probabilities that a male between twenty and thirty years of age will contract a given disease, such as phthisis or typhoid fever, and for this purpose he wishes to know the whole number of cases observed in a given population, and the number of the population furnishing those cases, in order to establish the ratio.

The fact that in each case of sickness there are many different circumstances which combine to produce the result is not, as Louis remarks, a valid objection to the use of statistical methods for the purpose of estimating the influence and relative importance of each of these influences; it is rather an argument in favor of their employment. Counting is better than guessing, and when it gives contradictory results as applied to two groups of cases, it indicates that some circumstances have not been taken into sufficient account, and that further inquiry is necessary. In the body of the sick man, as in the test tube, like causes under like circumstances will produce like effects.

Admitting that the chances of error in medical statistics are very much greater than in those relating to vital statistics, it does not follow that they have no value. It simply increases the desirability of collecting a large number of facts before proceeding to draw any definite deductions.

In statistics in regard to therapeutics we have to take account of the various influences which the condition of the organism exerts upon the results before we can fairly estimate the action of the new and special influence which has been introduced in the shape of an action of a drug, or a particular mode of treatment. In any event, such statistics, even when derived from a small number of cases, serve to indicate lines of investigation and to ask questions, if they do not answer them. As Legoyt remarks, two pneumonias do not resemble two dice, each having the same number of faces and of numbers, but rather dice with an unequal number of faces and different numbers.

The greater part of our pathology and therapeutics has not been derived from statistical observation. It is not by this means that the diagnosis of small-pox, or of scarlet fever, or of rheumatism, has been worked out, or the fact that the ulceration of the intestinal glands belongs to typhoid fever, or the presence of gummy tumors to syphilis; nor has it been by this means that the transmissibility of certain forms of disease by contagion has been proved. Whenever a necessary and logical connection between a particular cause and the resulting phenomena has been established, statistics are of little or no value in demonstrating the connection. In every case the result must follow the cause, as it does in a chemical experiment, and a few repetitions of such experiments give as great a degree of certainty as a thousand or more.

The chances of the occurrences of a certain event in relation to cause can only be mathematically calculated when the totality of the possible causes of the result remains the same under the different circumstances investigated. This is one of the chief reasons for the impossibility of drawing positive conclusions from medical statistics properly so-called.

The results of medical statistics will not apply to the treatment of any particular case. They can never prove that bloodletting should be employed in all cases of pneumonia, or that it should never be applied in any case of pneumonia. Even the results obtained from the most satisfactory medical statistics will only be found useful to the physician in directing his treatment in the absence of any special indications in the particular case which he has before him.

The data upon which to base medical statistics must be obtained either from published records, from unpublished memoranda collected by means of correspondence, or by the so-called collective investigation methods, or from personal experience. The published data include such records of private practice as are given in journals, transactions, monographs, etc., records and statistics of hospitals, statistics of public medical services and of medical and life insurance societies.

Detailed reports of cases such as are suitable for use in statistical work are not over-plentiful. In the majority of cases the individual data are not given. We have only summary statements of tables of results. This is the case with regard to much the larger part of the great mass of reports of results of hospital and asylum practice which have been published during the last hundred years, either in the form

of separate annual reports or in summaries for journals or societies. These reports give some information as to the prevalence of certain diseases in certain places at certain periods of time, and in this way have some historical value, but they do not show the proportion of cases of disease or death to the living population in which these occur, and very few of them give the data by sex and age in the manner required by the statistician. Some of these calculate death-rates with reference to the total number admitted during the year, others to the total number treated, which includes those remaining on hand at the beginning and those admitted during the year, and others to the total number disposed of during the year by discharge, transfer, or death. A few of them give the average daily number under treatment during the year and the average number of days' treatment for each case, sometimes making a distinction of sex, but almost never of race or age.

Comparisons of gross death-rates of different hospitals, however calculated, are of little value for the purpose of determining either the sanitary condition of the place, the skill of the medical staff, or the merits of the particular system of treatment, owing to the great variations in the class of patients admitted. Of course the statistics of hospitals for special classes of diseases can only be compared with those of the same kind; and even for general hospitals, the fact that the gross death-rate of one is higher than that of another proves very little.

In comparing hospital death-rates, it is now generally agreed that it is best to make use of the death-rates in relation to the total number of persons disposed of by discharge, transfer, and death for a series of years. Comparison of the number of deaths with the admissions only is apt to give very misleading results. A better method than this is that of Bertillon, who adds to the number at the beginning of the year one half the sum of those admitted and of those going out. It is also desirable to know the ratio of deaths and discharges to the mean population of the hospital, which is obtained by dividing the number of days of treatment by three hundred and sixty-five; but in this connection it is to be remembered that when the mortality is calculated with relation to the number of days' sojourn in the hospital, those physicians who keep their patients the longest will show the lowest death-rates.

From what has been said in these lectures it will be seen that no form of hospital statistics can be considered as satisfactory which do not give the distinctions of sex and age, and this not only for the total of all the patients, but for each of the several forms of disease treated.

Prior to the discovery and employment of antiseptic methods in obstetrics the records of lying-in hospitals were very unsatisfactory. It is true that we have no very definite standard of death-rates in child-bearing in private practice with which to compare them, but this rate is given by the Registrar-General of England as being at the rate of five per thousand children born alive for the twenty-eight years 1847 to 1874.

The summary of the returns of the externe maternities in connection with Guy's, Bartholomew's, and St. Thomas's Hospitals for the twenty-one years 1856 to 1876, compris-

ing an aggregate of 74,580 cases, give a mortality of 4.1 per 1,000.

The largest lying-in hospital and the oldest is that known as the Rotunda, or Dublin Lying-in Hospital. In 198,481 cases of confinement in that hospital, the death-rate was 13.9 per 1,000.*

It is not an easy matter to determine what may be called the normal or average mortality of women in childbirth in order to determine the probable utility of a particular mode of managing cases of labor, as, for example, the so-called aseptic method. From the mortality statistics of the late U. S. Census ("Report on Mortality and Vital Statistics," Pt. II, lxx) we find that in 1,577,173 births 5,646 deaths of the women are reported, being in the proportion of 3.57 per 1,000 births. This proportion was higher in the rural districts than in the large cities, and in negroes than in whites.

For the same year (1880) the Registrar-General of England reports the death-rate of women in relation to births as 2.07 per thousand. If now we compare these figures with those given by obstetricians and physicians, we shall find that the latter give death-rates from two to four times as great. Thus, Duncan gives the death-rate in private practice as from 8 to 10 per 1,000 births, while Le Fort gives the figures from maternity hospitals as 30,594 deaths in 888,312 births, or over 34 per thousand, while Ehlers, using the statistics of Prussia from 1816 to 1886, gives the rate as from 5.8 to 9.4 per thousand.

How are we to explain these differences? Is the reported greater mortality in rural districts, in certain races, or in physicians' reports due to peculiarity in the cases reported, or to the surroundings, or to the method of making reports and collecting data? Evidently the latter is first to be considered. In the data furnished by the census and the English registration reports, the cases attended only by midwives and wise-women are included as well as those attended by physicians, and it is among the negroes and the Germans that the proportion of cases thus attended is the greatest. Moreover, in the cities, where there is a regular registration of deaths upon physicians' certificates, there is less tendency to give the vague term of childbirth as the cause of death than in the rural districts, where the cause of death is returned by non-professional persons; but this does not apply to England, and it is not probable that it greatly influences the results in this country.

The deaths reported in the census as due to childbirth are those which occur during or soon after labor, including those due to hæmorrhage, exhaustion, acute uræmia, etc., while those which occur at a later period may be reported as due to peritonitis, septicæmia, etc., although the physician, in reporting the results of his private practice, would include all these as deaths due to labor.

While the physician will usually consider only the relation between the number of cases of labor and the number of deaths in childbirth, the vital statistician will study the relations of deaths in childbirth to the number of women

living between the ages of fifteen and fifty years, or to the total number of deaths from all causes. The figures of the last United States census show that of every 100,000 women between the ages of fifteen and fifty living in our large cities, 16.21 died in childbirth during the year, while in the rural districts the corresponding figure is 51.58.

If, then, we are to judge as to whether the death-rate in childbed in the practice of a particular physician is to be considered as high or low, we must first know whether the figures relate to hospital or to private practice, and, if the latter, whether it was in the city or in the rural districts. To obtain some standards for comparison we may use the numerous reports found in medical literature in which physicians have given the statistics of their private obstetrical practice, and compare the results with those given in the statistics of maternity hospitals.

Suppose that, for the sake of testing the relative efficiency of two different modes of treatment or of the general progress made during a series of years in therapeutics, we take the statistics of a particular disease, which should be one having a tolerably definite train of symptoms so as to be easily recognized. A disease which it is common to select for this purpose is acute lobar pneumonia. Suppose, now, that in a given group of cases of pneumonia subjected to one method of treatment the mortality or the proportion of death is found to be greater in another series of cases subjected to a different treatment; are we thereby authorized to conclude that that mode of treatment connected with the lowest mortality is really the cause of the low mortality? By no means. Before we can do this we have to settle the character of the cases, the proportion of those in each group occurring in advanced age or in intemperate persons, or in those affected with other diseases, or in certain races, because all these circumstances influence the death-rate. We have also to take into account the total number of cases in each group in order to make an allowance for the probable error due to small numbers. If the two groups of cases have occurred in different localities or have been treated in different institutions, we have then to take into account the special influences of the locality or institution, as far as it is possible to do so, and not until all these corrections have been made can we fairly estimate the relative influence of the treatment.

In the absence of statistics of cases and deaths by ages, we can get very little information from statements of death-rates from pneumonia. For example, the death-rate in United States hospitals from pneumonia from 1877 to 1888 was 18.72 per cent. of the cases treated. Was this a high or a low death-rate? We can only say that it was probably rather below the average, since the average death-rate for males between twenty and fifty years of age is 19.9 per cent. of cases treated. The need of such considerations is well illustrated in a paper by Dr. C. W. Townsend and A. Coolidge, contained in the "Medical News," July 27, 1889, p. 85. This paper is a discussion of all the cases of acute lobar pneumonia treated at the Massachusetts General Hospital from 1822 to the present time, the figures being divided into periods of ten years, making seven decades in all.

* Summarized from the "Dublin Medical Journal," 1869, and from Dr. Johnston's "Annual Reports" from 1868 to 1875.

The conclusions arrived at by the authors are as follows:

1. In the thousand cases of acute lobar pneumonia treated at the Massachusetts General Hospital from 1822 to 1889 there was a mortality of 25 per cent.

2. The mortality has gradually increased from 10 per cent. in the first decade to 28 per cent. in the present decade.

3. This increase is deceptive for the following reasons, all of which were shown to be a cause of a large mortality:

(a) The average age of the patients has been increasing from the first to the last decade.

(b) The relative number of complicated and delicate cases has increased.

(c) The relative number of intemperate cases has increased.

(d) The relative number of foreigners has increased.

4. These causes are sufficient to explain the entire rise in the mortality.

5. Treatment which was heroic before 1850, transitional between 1850 and 1860, and expectant and sustaining since 1860, has not, therefore, influenced the mortality rate.

6. Treatment has not influenced the duration of the disease or of its convalescence.

Suppose we try to estimate the relative value of a particular treatment of rheumatism, say, by salicylates. We find several tables in medical literature giving the results treated by this and other methods. As a type, take the analysis of 1,200 cases treated at Guy's Hospital, given by Dr. Hood ("Brit. Med. Jour.," Dec. 31, 1881, p. 1119), in which he gives the average duration of illness, number of relapses, and number of cases of cardiac complications in 350 cases treated with salicylates and in 350 cases treated without them, and concludes that relapses and cardiac complications were more frequent under the salicylate treatment, but that the pain ceased sooner and the average length of stay in hospital was less. But the cases are not tabulated by sex, age, race, etc., so that we can estimate the bearings of these circumstances on the results, nor in any tables are these results thus classified.

An important point in medical and vital statistics is to keep the current record, or what may be called the day-book account, entirely separate and distinct from the classification or modes of tabulation. The current record must be made complete at the time, for if any items are left out they can never be replaced. But this record, once made, may be used in various systems of classification and comparison for many years afterward. If an attempt be made to put this record into the form of a classified return primarily, it is certain to be defective, and will not be applicable to researches of another kind.

In the reviews of the progress of medicine, of which we already have a large supply in the shape of annual addresses and centennial literature, and to which extensive additions will no doubt be made at the close of the present century ten years hence, you will find more or less elaborate statements of the advances which have been made in diagnosis, pathology, preventive medicine, and surgical therapeutics in all its branches. Also, it is easy to show that we

have made great advances in the art of relieving pain. But, when we seek by statistical methods to determine what advances we have made in the prevention of death by the internal use of drugs, it must be confessed that the data are, for the most part, wanting, and that the optimist and the pessimist can propound their theories and beliefs upon nearly an equal footing—*i. e.*, that of ignorance of the real facts in the case.

It is easy to see that the statistics of fevers collected in the last century—before typhus, enteric, and relapsing fevers were distinguished from each other—are of little use now, and modern bacteriology has destroyed, to a great extent, the value of the old statistics of tubercular diseases, typhoid fever, cholera, etc., and of the statistics of surgical operations. They have rendered some service in their day, but their value is now chiefly historical. There is, however, in existence in medical literature a very considerable number of cases which have been recorded with sufficient detail to be available for statistical treatment which they have not yet received. Death-rates in relation to number of cases of special forms of disease, showing relations of mortality to sex, age, and race, are yet to be calculated, and there is material for some good and useful work in this direction.

Within the last twenty-five or fifty years in civilized communities the gross mortality has diminished, there has been a prolongation in the average expectation of life, and the mortality of the years of infancy has greatly diminished; but how much of this is due to preventive medicine, how much to improved conditions of habitation and to the lowering of the price of food, and how much to improved methods of treatment? Dr. Zweifel endeavored to answer this question in a lecture on the influence of medical knowledge on the life of the people, delivered in Leipsic in 1887. ("Der Einfluss der ärztlichen Thätigkeit auf die Bevölkerungsbewegung.")

Taking as a basis for his calculations the figures of Bavaria for ten years and those of Saxony for thirteen years, he found that, for 100,000 living population, the average number of deaths from tuberculosis increased from 250 to 258; from inflammation of the lungs, from 222 to 270; from croup and diphtheria, from 98 to 123. He remarks that these are saddening figures, in spite of the sanitarians and health resorts, in spite of ventilation, new methods of treatment by inhalation, compressed air, etc. The number of men who die from diseases of the respiratory organs is steadily increasing, and he queries whether Süssmilch was not right in his phrase "Göttlichen Absterbeordnung" ("Divine law of death").

On the other hand, he shows that the mortality from typhus has fallen from 62 to 34. But the question is whether this is due to a diminished prevalence of the disease, or to a diminished mortality in the same number of cases of the disease due to improved medical treatment. It may be noted in this connection that the chief effect of improved sanitation appears in the lessened mortality in children under five years of age, and that it is chiefly in the mortality occurring after these ages that we are to look for the influence of improved medical treatment. In examining this, how-

ever, it is to be remembered that improved sanitary conditions, affecting chiefly infants by preserving a number of feeble and sickly children, tend to produce a higher rate of mortality in succeeding years. In cases admitting of surgical treatment, and in childbirth, there can be no doubt as to the diminished mortality in the practice of those who use the best accepted modern methods, but these methods are not yet used scientifically by half of the profession, and the results are not perceptible in the general death-rates thus far collected.

It must be admitted that the greater part of the increased expectation of life is probably due to better food, purer water, greater cleanliness, and improved methods of preventing the spread of contagious diseases. If we look at the curves representing the loss of life in large masses of people at different times and places we see that the laws of life and death have but a narrow range of variation after the age of infancy has passed, and that improvements in therapeutics have lifted the lines but very little. They have lessened suffering greatly, but they have not greatly deferred death.

In our present state of knowledge there are certain forms of disease and derangement of organs whose tendency is to recover without any treatment, or in spite of bad treatment. There are also certain diseases and derangements which are incapable of cure by any known method of treatment. Otherwise, man would not be mortal. Between these two classes is a small number of cases of disease the result of which depends on the treatment. In order that medical statistics may give us any information in regard to this last class, we have got to have some idea as to the proportion of each of the two other classes.

A very good illustration of some of the ways in which lies can be told with statistics may be found in the various books and papers which have been produced in connection with the anti-vaccination controversy.

In order to understand the relations between vaccination and small-pox it is necessary to have the death-rates from small-pox given for different periods of life—that is, by age. In this country and in Great Britain we have no data as to the deaths by small-pox by different ages prior to the introduction of vaccination, because the registration of deaths by ages has only been carried on for a little over fifty years. We can, however, for Great Britain, compare the statistics of vaccination for three different periods—the first, from 1847 to 1853, in which gratuitous vaccination was provided for the people, but it was purely an optional matter with them whether they should make use of it or not; from 1854 to 1871, when vaccination was obligatory by law, but this was mainly theoretical, since the law was practically not enforced; from 1872 to 1880, when the vaccination was rigidly enforced.

Before the introduction of vaccination there were but few persons who did not have the disease at some time in their lives. It appeared in epidemic waves over Europe, usually at intervals of from five to seven years, being about the period of time required to accumulate by births a sufficient amount of susceptible persons to enable an epidemic to make headway. Of course, then, the great majority of

persons had the disease in infancy, or in early childhood, and a large proportion of these died. So that in those days the small-pox mortality in the early years of life was high, while those who survived were either protected from future attacks or presented a certain amount of immunity to the poison of the disease, so that the small-pox death-rate of the higher ages was then low. When vaccination came to be general, the young were protected, but were not protected as permanently and completely as would have been effected by an attack of small-pox. The result of this was that the death-rate from small-pox under five years of age fell eighty per cent., while from five to ten years of age it fell forty-five per cent., and in the older ages it may even have increased where revaccination was not systematically and thoroughly carried out. Taking the English records for 1872 to 1874 and 1877 to 1880, it is found that the proportion of deaths under and over fifteen years of age, per thousand deaths, from small-pox differs according to whether the persons were vaccinated or unvaccinated, as follows: Of 1,000 unvaccinated persons dying from small-pox, 672 were under fifteen years of age and 328 over fifteen. Of 1,000 vaccinated persons dying from small-pox, 334 were under fifteen and 666 over fifteen, the proportions being, as will be seen, almost precisely reversed under the two conditions.

If we compare the death-rate per 1,000 of living population in an epidemic of small-pox occurring in a city in the United States in recent times with that of an epidemic occurring in a city in the last century, we shall probably find that the death-rate was greater in the modern city than in the ancient one. Perhaps two thirds of the people in the modern city were properly vaccinated; in the ancient city none were vaccinated. Are we to conclude that partial vaccination increases the death-rate from small-pox? Yes, for a single epidemic year; but if we take a period of twenty years or more for our comparison, we shall find the death-rate much lower in the vaccination than in the ante-vaccination period, because in the ante-vaccination period the adults had been through several epidemics of small-pox, and had either had the disease and survived, or had proved insusceptible to the virus, being in either case protected. The only class of the population in much danger from small-pox in those days were the young children born since the last epidemic, less than ten years ago. But in the modern community, partially protected by vaccination, there has accumulated a considerable number of unprotected adults during the long periods which now elapse without an outbreak, and these increase the death-rate. Comparisons of small-pox statistics for single years are therefore almost worthless.

In vital statistics, as in other branches of social science, it is not true that the effects of causes acting in combination are equal to the sum of the effects of each of the causes acting separately. Different causes of death having no relation to each other do not have a joint effect which is equal to the sum of the effects of each cause taken separately, and it is therefore difficult to bring the phenomena of vital statistics within the boundaries of mathematical formula. In the doctrine of this kind of averages time and number are not convertible terms.

Statistics applies to masses of men, to communities, not to individuals. We find a mass of matter moving in a certain direction with a certain velocity and endeavor to calculate the direction and amount of the forces which have produced this result. In like manner we may consider the tendency to death in a community as a resultant of several forces as indicated in the diagram, and endeavor to estimate the influence of each of these forces in producing the result.

In studying medical and vital statistics one is somewhat in the position of a man on the deck of a large Atlantic steamer, out of sight of land and gazing on the troubled ocean. He sees many waves, large and small, apparently moving in very different directions, and it is not until he has, by careful examination and repeated comparison, learned to distinguish the ripples due to the wind now blowing, the larger cross-seas resulting from forces which were acting a few hours before, and the long rolling swells which indicate to some extent the direction and force of the tempest of yesterday, that he can begin to understand the roll of the ship on which he stands; while to appreciate the force and direction of the great current which is sweeping with it all the troubled water and the ship itself requires skilled observation with special instruments, and the use of charts which embody the experience of hundreds of voyages. So also in viewing the records of human life, disease, and death, the variations which are at first most perceptible are often those which are most superficial and which give little or no indication of the magnitude and direction of the movement of the great masses beneath.

The following works will be found useful for reference:

Süssmilch, J. P., "Die göttliche Ordnung in den Veränderungen des menschlichen Geschlechts, aus der Geburt, dem Tode und der Fortpflanzung desselben erweisen," 2. Theile. Vierte verbesserte Ausgabe, genau durchgesehen und näher berichtet von Christian Jacob Baumann. 8vo. Berlin, 1775.

Niles, N., Jr., and Russ, J. D., "Medical Statistics; or, a Comparative View of the Mortality in New York, Philadelphia, Baltimore, and Boston, for a Series of Years; including Comparisons of the Mortality of the Whites and Blacks in the Two Former Cities; and of Whites, Free Blacks, and Slaves in Baltimore." 8vo. New York, 1827.

Neison, F. G. P., "Contributions to Vital Statistics, being a Development of the Rate of Mortality and the Laws of Sickness, from Original and Extensive Data; with an Inquiry into the Influence of Locality, Occupations, and Habits of Life on Health; an Analytical View of Railway Accidents; and an Investigation into the Progress of Crime in England and Wales." 3d ed., 4to. London, 1857.

D'Espine, M., "Essai analytique et critique de statistique mortuaire comparée, renfermant les monographies étiologiques des accidents et de la plupart des maladies mortelles et expliquant les lois générales de la mortalité des peuples par les influences combinées des diverses causes de mort." 8vo. Genève, 1858.

Ansell, C., Jr., "On the Rate of Mortality at Early Periods of Life, the Age at Marriage, the Number of Children at a Marriage, the Length of a Generation, and Other Sta-

tistics of Families in the Upper and Professional Classes." 8vo. London, 1874.

Bertillon, "La démographie figurée de la France ou étude statistique de la population française avec tableaux graphiques traduisant les principales conclusions. Mortalité selon l'âge, le sexe, l'état-civil, etc., en chaque département et pour la France entière comparée aux pays étrangers." Folio. Paris, 1874.

Ollendorff, A., "Die periodischen Sterblichkeits-Schwankungen in ihrer Bedeutung für die Medicin." "Arch. f. path. Anat.," etc., Berlin, 1886, cv, 110-128, 1 pl.

Bertillon, Jacques, article "Démographie" in "Encyclopédie d'hygiène et de médecine publique." Paris, 1889, 8vo, tome 1, p. 119.

In addition to the census and registration records we have another important source of information in vital statistics—namely, the records of life and health insurance companies. These are not so well known to physicians generally as they should be, and I wish therefore to call special attention to the two most valuable compilations of them now in existence—namely, the "Insurance Cyclopædia," commenced by Cornelius Walford, of which five volumes have now been published, and the "System and Tables of Life Insurance based on the Experience of Thirty American Life Offices," by Levi W. Meesh, published in 1881.

Original Communications.

CONGENITAL ABSENCE OF FIVE RIBS, WITH RESULTING DEFORMITIES.*

BY HOMER GAGE, A. M., M. D.,
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THE subject of the following sketch was referred to me in May last by Dr. O. H. Everett, of Worcester, Mass. I have been unable to find any similar case in my own reading, and Dr. R. Lorini, of Washington, who has made at my request a very careful search, reports that he can find no reference to any like deformity in the library of the Surgeon-General. I have thought, therefore, that these photographs,† with a brief sketch accompanying them, might prove of interest to you.

Susie S., born in Worcestershire, England, aged seventeen years and two months, is the oldest of nine children, none of whom present any peculiarities of growth or development. While pregnant her mother fell down stairs, injuring her side, but had never attached any significance to the injury. The absence of part of the bony wall of the thorax on the left side was noticed at birth. There was not, however, any curvature of the spine, nor was anything noticed with regard to the position of the heart. While she was yet a baby in long clothes, a little bunch was observed in the left side, which appeared only

* Read before the American Orthopædic Association, September 19, 1889.

† For the photographs I am under great obligations to Dr. E. V. Sibbner, of Worcester. The lines indicating the position of the ribs and viscera were drawn upon the body with soft crayon.

when she was coughing or crying, was about as large as a walnut, and seemed not unlike a rupture. She was carried daily to the hospital in the vicinity, where a bandage was applied to keep the bunch from coming out. These measures were, however, unsuccessful, and it gradually grew larger, attaining its present size about four or five years ago. The spinal curvature was first noticed when she was five or six years old, but received no treatment until four or five years later, when plaster jackets were applied, and these four years ago were discarded in favor of a corset made of mill-board stiffened with fish glue. The corset has not provided any proper support for more than a year, and in consequence her

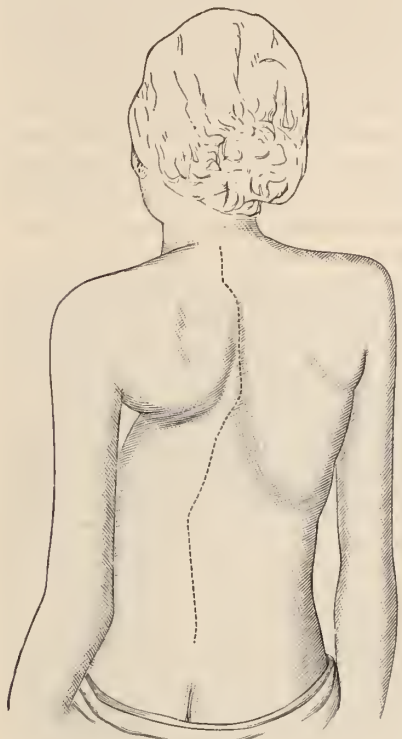


FIG. 1.

curvature has increased very rapidly, and her general health been very much impaired.

She has never had any serious illness, has met with no accident, and until within a year past has been obliged to assume, to

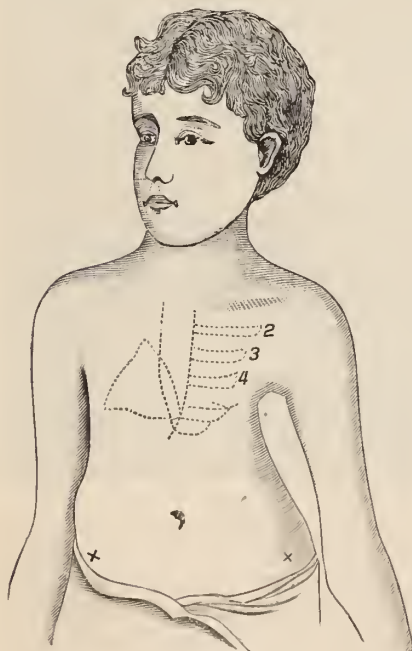


FIG. 2.

a large extent, the work and responsibilities of the house. Since the jacket failed to afford an efficient support she has lost both flesh and strength, has complained of pain in the back and left side almost constantly, has lost her appetite, and has complained of great pain and distress after eating. She says that she can neither walk nor eat without pain. She has never menstruated. She is four feet one inch and a half tall, weighs seventy-two pounds, is pale and thin, breasts undeveloped, no signs of

puberty. She has a lateral curvature of the spine in the mid-dorsal region, with the convexity to the right, and a long compensatory lumbar curve. There is considerable horizontal rotation of the vertebræ, as indicated by the prominence of the angles of the ribs on the right side, but there is no correspond-

ing prominence of the costal cartilages in front on the left.

Upon inspection, the left side presents very much the appearance often observed after severe empyema, when the cavity has been closed by the retraction of the chest wall instead of by the expansion of the lung. But closer examination shows that the appearance is due not to the retraction of the chest wall, but to the congenital defect in its development. As indicated in Fig. 2, the first, second, third, fourth, and fifth ribs are found in their natural positions and relations. Just below the fifth costal cartilage is a sixth cartilage which is connected with the end of the sternum and can be traced outward and upward until it joins the extremity of the fifth rib. There is no trace of the sixth, seventh, eighth, ninth, or tenth rib, and in the gap thus left the muscular wall can easily be pushed in until the pulsations of the aorta can be felt from the side. In this gap, too, as is shown in Fig. 4, can be readily made out and felt the upper half of the spleen. Across the middle of the spleen can be felt the eleventh and twelfth ribs, smaller and in much closer proximity to each other than normally.

Pulmonary resonance and the respiratory sounds are lost below the border of the fifth rib in front and below the angle of the scapula behind. The area of cardiac dullness begins at the middle of the sternum, and extends to below the right nipple in the fifth interspace, as shown in Figs. 2 and 3. The first sound of the heart is heard loudest at this point, and the second sounds along the opposite side of the triangle. There is no murmur. Pulsation can be seen and felt all over this area, but more distinctly along what seems to be the basal line. Figs. 3 and 5 are instantaneous photographs taken while the girl was in the act of coughing, and afford a very accurate representation of the bunch to which I have already alluded. It can not be produced or maintained by any ordinary muscular effort, and subsides almost at once with the expiration which completes the cough. It has a firm, elastic feel, and, as it is thrown out against the hand, gives a sensation exactly like the impulse of a hernia. Percussion over the whole area reveals a resonance decidedly stomatic in character. When once thrown out it can be partially held in position by the hands, and if at such times a little water is swallowed, it can be distinctly heard to fall into the stomach. Unless this bunch can be prevented from appearing by firm pressure of one sort or another, she says that she is in constant distress, which is aggravated by eating or drinking.

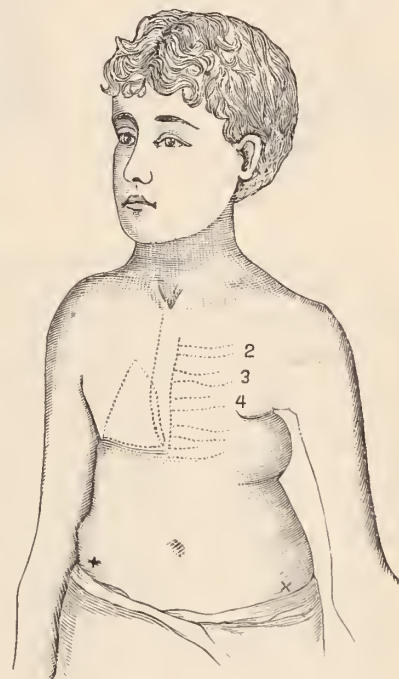


FIG. 3.

For her relief I applied a plaster jacket, from which I made a cast of the body from the axillæ to the trochanters. Upon this cast I had a leather corset molded, and I endeavored to give it additional strength by incorporating four steel stays. She has worn this corset now for about two months with very

satisfactory improvement. She has gained in flesh and strength, has a better appetite and better color, and is once more able to attend to her household duties.

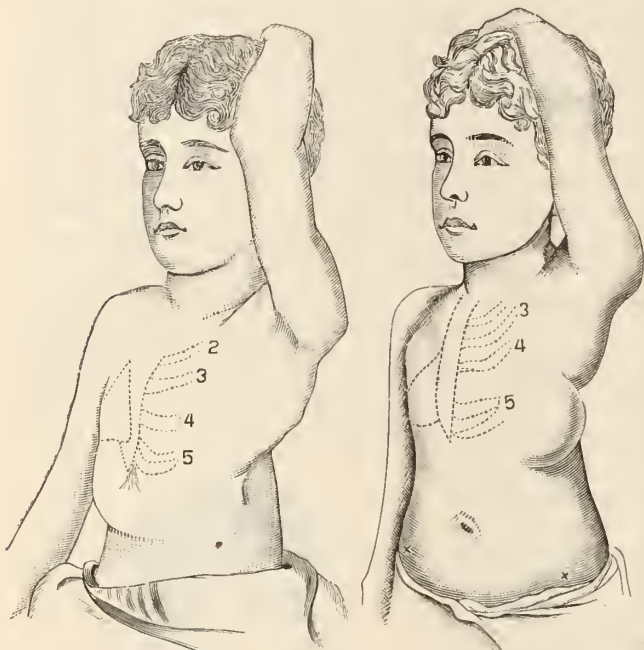


FIG. 4.

FIG. 5.

Coexistent with these anomalies in the number of ribs there is very often, almost as a rule, a corresponding defect in the development of the vertebræ, as in the very remarkable case reported to the Royal Medical and Chirurgical Society by Willett and Walsham in 1880, in which five ribs on the right side, four on the left, and four and a half dorsal vertebræ were absent. There was a lateral curvature with convexity to the left which was believed to be due to the absence of the right half of the third dorsal vertebra. I feel very confident that in the case which I have just described there are twelve dorsal vertebræ. How many, if any, of them are imperfectly developed could be determined only by post-mortem dissection. Repeated and very careful examinations have, however, failed to give any evidence of asymmetry in their development. Moreover, I fail to see why such a supposition is necessary to explain the subsequent deformities. The absence of five ribs upon one side must cause a very serious disturbance in the arrangement of muscles and fasciæ. What has become in this particular case of the attachments of the serratus magnus, of the lumbo-sacral division of the erector spinæ, of the latissimus dorsi, and the great muscles of the abdominal wall, is of course impossible to determine; but, whatever their attachments may be, these muscles must work at a disadvantage as compared with their fellows of the opposite side. In consequence thereof, as soon as the child began to assume the erect position the superincumbent weight of head and upper extremities was transmitted to a spinal column whose supports were seriously crippled on one side. The result has been the gradual development of a lateral curvature with its convexity toward that side whose supports were strongest.

The position of the heart on the right side is very much

indeed like that observed in cases of left-sided pleurisy with large effusion, or in cases of left pneumothorax, and I am strongly inclined to the belief that it is the result of similar mechanical conditions. The left pleural cavity is diminished very much by the absence of so many ribs, and has been wholly occupied by the growth and expansion of the lung. In some way or other it seems to me that this growth and expansion of the lung with the sinking in of that side of the thorax and the increasing lateral curvature have forced the pericardium and its contents to the right. The only alternative is to assume that the position is an anomaly of development, and that seems to me hardly necessary. A congenital displacement is usually associated with a general transposition of viscera, and that is certainly not true of this case.

There remains only the peculiar tumor which appears with the act of coughing. I have already indicated briefly my idea as to its probable nature, and will only add that the evidence obtained from its shape and position, from auscultation and percussion, and from the manner of its appearance, leaves in my own mind no reasonable doubt that the tumor is a hernia of the stomach.

AN EXANTHEMA AFTER THE USE OF RHUBARB.*

BY HERMAN GOLDENBERG, M. D.

I. W., German, aged sixty-four years, a sailor, was taken sick last November with cough, bloody expectoration, and a swelling of both ankles, which was regarded as rheumatic and treated with a solution of salicylate of sodium. The amount taken could not be ascertained. He stated that, after having taken about thirty teaspoonfuls of the mixture, he awoke on the morning of the 6th of January with a violent beating sensation in the head and a burning in the face. He found, on examination, a number of small nodules on the face, which, in the course of the day, became larger and at the same time pustular. The number of nodules then increased, and others appeared over the hands, which also underwent the same pustular change.

When I saw the patient, on January 8th, he was suffering from frequent epistaxis, and presented an anæmic appearance, suggestive of some general disturbance. Temperature normal, urine scanty, specific gravity 1.011, containing two per cent. of albumin.

The face was quite disfigured, and showed perfectly symmetrical lesions on both cheeks. They extended not above a line drawn from the upper end of the concha auris to the lower eyelid, and below they were limited by a line drawn from the lower end of the concha auris to the angle of the mouth; on the outer side they were found up to the ear, and on the inner side to a line joining the middle of the cornea to the angle of the mouth. The scalp and hairy parts of the face were not affected. The eruption was confined to the region supplied by the peripheral branches of the facial nerve, involving especially the zygomatic and the buccal. It consisted of from fifteen to twenty brownish-red, irregularly-shaped pustules, varying in size from that of a pea to that of a bean, or larger. The lesions seemed to be deeply infiltrated at their bases, and were

* Read before the American Medical Association at its fortieth annual meeting.

surmounted by a superficial pustular formation, the whole being surrounded by an inflammatory area. On pressure, a quantity of pus exuded, followed by blood, the lesions retaining their original size. Below and to the outer side of the middle of the eyes, protruding tumor-like, two large pustules were found. They were much infiltrated, of about the size of a fifty-cent silver piece, and elevated about an inch from the level of the face. The surface of the tumors presented a number of cribriform openings, out of which pus, sebaceous matter, and blood could be pressed in the same way as in the smaller pustules. On the surface of these tumors the pus had dried, form-



ing a thick crust. After their removal there appeared a moist, bleeding, fungoid, ulcerated surface. A similar nodular and pustular eruption was present on the dorsum of either hand. The lesions gradually disappeared without any treatment in the course of a few weeks, leaving a bluish pigmentation, but no cicatrices. The albumin remained constant during the whole time that I observed the patient. The eruption had been looked upon by the physician who sent the patient to me as pemphigus. Although at first glance it resembled pemphigus very strongly, closer observation and the clinical course, together with the nature of the lesions, excluded this affection. I need only refer to the facts that there was no fever, that the general health was

good, and that the eruption had appeared suddenly, consisted of infiltrated nodules and pustules, and was confined to the face and hands.

I concluded that we had here to deal with an artificial eruption, as I had previously seen a similar case caused by the use of bromide of potassium, and, furthermore, the eruption resembled the one described by Dr. R. W. Taylor and Dr. C. W. Cutler as dermatitis tuberosa after the use of the iodides.

His physician had reported to me, as I have already mentioned, that the patient had taken large doses of salicylates, but, as I had never heard of any similar eruption occurring from their use, it occurred to me that there might have been an error on the part of the apothecary. This was proved, however, not to be the case on analyzing the medicine. I believed myself, therefore, justified in regarding the exanthema as one caused by the salicylates, and was confirmed in this belief through the reports of Dr. Lauriston E. Shaw, of 1886 and 1887, and, still more recently, his recorded cases in the "Lancet" of January 19, 1889, in which hæmorrhage occurred in rheumatic patients after the use of the salicylates. He says that the epistaxis during salicylation is mentioned by nearly all writers on the subject. In order to determine if the salicylates were the real cause, I continued giving the patient a mixture containing the salicylate of sodium during the following four weeks, without, however, producing any eruption or causing any disturbance in the general health. My conclusion, therefore, seemed to have been at fault, as it hardly appeared probable that this medicament would not have produced a result similar to the last eruption, even if not to the same degree.

It is well known that affections of the kidneys have an influence on artificial exanthemata in such a manner that those drugs which are well borne in a normal state of the kidneys produce a toxic effect upon the skin if they are affected, owing to the fact that the perspiration takes vicariously and to a certain extent the place of the kidney secretion. On the other hand, the same drugs are well borne when the normal kidney function is restored. In the case of my patient such a tolerance of the drug could not be assumed, since the amount of albumin during this period was not only not diminished, but rather increased. Although forced to exclude the salicylates as the causal agents, I yet adhered to the opinion that the eruption was produced by some artificial means.

I must here mention that the patient had informed me that before the appearance of the eruption he had been subject to constipation, for which he had been in the habit of taking rhubarb and Hamburg tea containing also rhubarb. I had noted these facts, but had not considered them of any importance. I also read about the same time of a case presented by Dr. Litten, at a medical meeting in Berlin, of a rhubarb eruption resembling a very severe pemphigus and which could be reproduced at will. I was therefore led to try the effect of this drug.

After a week's rest from all medication I gave the patient a mixture of rhubarb and soda. Having taken about an ounce and a half of the mixture, containing about two drachms of the pulvis rhei, the patient awoke on the morning of the 12th of March with a burning sensation in his face, and he noticed on both cheeks an eruption consisting of small, hard blisters, pea-sized, of tubero-pustular character, surrounded by a red inflamed area. The lesions increased to such an extent that, when I saw the patient the next morning, almost the entire face was covered

with thick yellowish crusts, beneath which there was an accumulation of pus. The eruption was symmetrical, the scalp and hairy part of the face being free. The characters of the single lesions were the same as in the first attack: pustules on an infiltrated base, and also a tendency to bleed on the removal of crusts. On the extensor and the flexor surfaces of the hands and somewhat on the fingers there was the same eruption as on the face.

The patient discontinuing the medicine, the lesions gradually faded in a few days and the ulcers began to heal. On the fourth day, through a misunderstanding, the patient again took two or three teaspoonfuls of the mixture, and a few hours later a decided effect of the drug was again noticeable upon the skin. The reproduction of the eruption by rhubarb thus occurred three times, and I would consequently conclude that that drug was the cause.

I regret that I was unable to continue my observations on this interesting case, as his death ensued not long after from purulent peritonitis following a suppurating embolus of the spleen.

107 EAST FIFTY-NINTH STREET.

REPORT OF A CASE OF PERNICIOUS ANÆMIA.

By E. R. AXTELL, M. D.,

RESIDENT PHYSICIAN TO ST. LUKE'S HOSPITAL, DENVER, COL.

G. S., aged thirty-four, of normal weight (one hundred and seventy-five pounds); nativity, England, northern part; in Denver five months; came here from Massachusetts, where he had resided one year. He was in Canada two years ago; he had been there five years; occupation, ditcher, laborer. Three months ago, while ditching, he worked in water up to his waist. He worked in this water for a week, and dates all his symptoms from that time.

The patient was always strong and healthy. He had a slight bilious attack last summer; was sick only four days. He denied syphilis. Never was a great drinker nor a regular one. Has been drunk, however, a number of times.

He was admitted to St. Luke's Hospital August 12, 1889. He states that last winter he felt excellently; never had better health. In June last the patient worked for a week at ditching. Was compelled to stand in water up to his waist. During this week he had numerous chills, with languor and fever. Since that time he has never been well—has never been able to do a full day's work. Always felt tired—"played out." For a week or two after, he was on a ranch putting up a wire fence. He found that he could not do a day's work; would have to quit. No dyspnœa, but a sense of extreme weakness. Then he came to Denver and found that he still could not work. Appetite began to fail, he had repeated vomiting, looseness of bowels, few chills, and some fever. He states that he con-

sulted a doctor about July 25th, and that the doctor visited him for some time, but that he got no better. He states that about July 24th he had a very severe nose-bleed, which continued for an hour without ceasing. It was stopped, he says, by ice being applied to the back of his neck. An hour later his nose bled for the second time, and continued to bleed for half an hour. He states that his nose had bled several times before this, but not freely. Was now confined to bed. When the patient was brought to the hospital he was thought to have typhoid fever. Placed on a solution of quinine and listerine. Quinine, five grains every four hours. He was kept on this for a week without effect; the case in the mean time was studied with the following result:

Nervous Symptoms.—Great languor, with weakness of limbs. Much dizziness upon arising from bed. Subjective noises in head and ears. Backache at times. Slowness of memory; no headache; sight and hearing good; distressing feeling of being "tired out."

Respiratory Symptoms.—Some cough at times; nose feels "stopped up"; free discharge; has catarrh; while lying in bed has no dyspnœa. Respires 15 to 18 times a minute. When out of bed has just the slightest amount of "air-hunger," hardly sufficient to be noticed; has nose-bleed almost daily; hardly able to blow nose without some epistaxis.

Circulatory Symptoms.—Pulse weak, compressible, and ranging from 60 to 100; no cardiac palpitation; none during the whole term of observation.

For temperature range, see below.

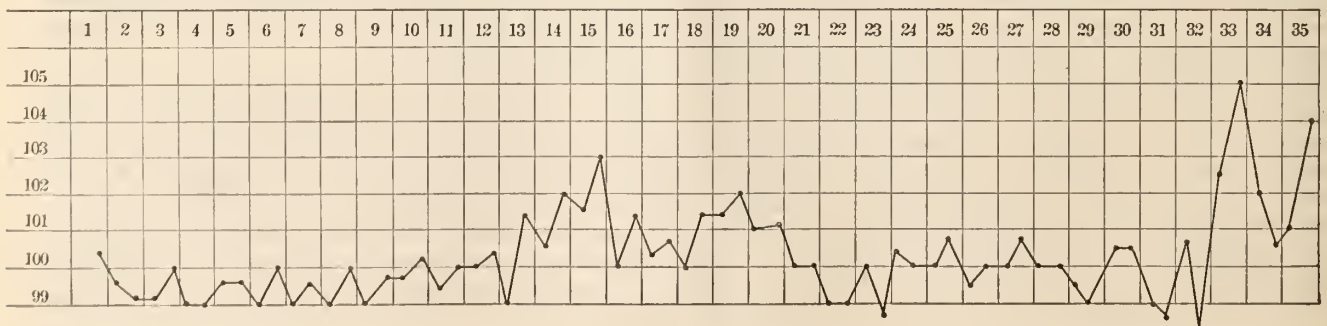
Digestive Symptoms.—No appetite; nausea and vomiting frequent; bowels very loose; painless; has had from ten to twelve stools during several nights; medicines exert but little effect; stools dark-brown, thin, watery, and speckled with lumps of yellow feces and mucus; states that he has passed a small quantity of blood by the bowel on several occasions; no piles; mucous membrane of mouth pale; tongue large, soft, light in color, with a light coating of whitish fur at times; no great thirst.

Genito-urinary Symptoms.—Had gonorrhœa a month ago; passes water freely at present. Urinalysis: Urine clear, amber-color, specific gravity 1.018, ranging to 1.024, reaction acid, no albumin, no sugar.

Tegumentary System.—Skin dry, harsh; exposed parts a dark, faded-leaf yellow; forearms especially darkened; other parts slightly tinged; conjunctiva slightly yellowed at inner canthus; at times patient sweats a great deal.

Muscular and Osseous Systems.—Nutrition fairly good; fair amount of fat; patient stated that he had lost twenty pounds since the commencement of the disease, or after working in that ditch of water; has tired feeling in body and limbs at all times; no pain or tenderness in bones.

Physical Examination.—Skin of a mulatto-color, earthy yellow; forearms darker than chest; slight sore on lobe of left ear; conjunctiva partly jaundiced, the rest pearly white; gums, tongue,



lips, and nails anæmic; nails very slow in growth; superficial veins never prominent; chest well developed; no sinking of spaces; expansion good; palpation and percussion normal; auscultation reveals dry wheezing râles over right lung anteriorly; left lung normal; heart dullness normal; impulse feeble and diffused; hæmic systolic murmur heard over both pulmonary and aortic orifices; this loud and clear; abdomen of good size, flabby, not distended; liver dullness lessened; splenic outlines greatly enlarged; can be felt below ribs as a hard rounded mass; extends upward to sixth rib; some pain on pressure; limbs normal, except for discoloration of skin.

Ophthalmoscopic examination of fundus oculi revealed numerous small hæmorrhages irregularly scattered over both discs. One large hæmorrhage in lower outer quadrant of left retina.

Course.—The patient, after being on quinine for a week without any perceptible effect, was then placed on Warburg's tincture, a half ounce every three hours, to which was added later tincture of digitalis and tincture of chloride of iron. Diarrhœa in the mean time continued, but was partially checked by bismuth and opium, only to commence if the medicine was omitted for a half-day. Gradually patient got weaker and weaker. Nose bled more frequently. Appetite became very poor, and tired sensation became very distressing. Patient seemed to realize that he was to die and was very low-spirited.

At this time the blood was examined as to its physical character, and also microscopically. Quite a pin-thrust was necessary to draw any blood at all. The drawn blood was red, but paler than normal, and was of less consistency, being thin and watery. Power and rapidity of coagulation lessened. Under the microscope the number of red cells was found to be greatly diminished, as compared with a specimen of blood drawn from a healthy man. No count was made, no hæmatocytometer being obtainable. The red corpuscles were very small, irregular in shape, crenated, and paler than normal. They did not form rouleaux, and but few presented a side-view. The white corpuscles or leucocytes were also very scarce, and their diminution was clearly as noticeable as the diminution of the red cells. Clearly a leucæmia also prevailed.

Warburg's tincture was continued for over two weeks with no result. Some stimulation also administered. Patient then placed on Fowler's solution of arsenic; five drops after each meal. All other medication was then discontinued except stimulation.

For eight days the patient was kept on this treatment. No apparent change occurred. On September 13th the patient had two severe chills—one in the early morning, one at 3 P. M. These were followed by fever, severe pain in the right side, and the next day by "rusty sputa" and typical signs of croupous pneumonia, from which the patient died at 4 A. M., September 16th.

Autopsy.—Body that of a well-developed, well-nourished man; skin of a light, earthy-yellow color; post-mortem rigidity well marked; autopsy made sixteen hours after death; fair amount of subcutaneous fat; no post-mortem staining of skin; both lungs free from pleuritic adhesions; whole lower lobe of right lung and lower part of the upper lobe in first stage of croupous pneumonia; pleura over affected surface intensely inflamed; left lung normal; no hydrothorax; heart normal in size; no excess of pericardial serum; muscular tissue soft, flabby, pale in color; cavities filled with soft, brown clots; auricles and ventricles thinned; ventricles more degenerated than auricles; valves normal; spleen markedly enlarged in all directions; about two pounds in weight; substance intensely reddened and harder than normal; small supernumerary spleen, size of a marble, in omental fat; liver slightly contracted and

markedly *cirrhotic*; gall-bladder contained but little bile; pancreas normal; kidneys normal, slightly paler than usual; supra-renal capsules normal, as regards size and shape; intestines very pale and flabby; mesenteric glands not enlarged; brain not examined.

Points of interest centering in the case:

Sudden Onset.—The patient stated positively that he was well and hearty until he began ditching in June, during which time he worked for a week in water up to his waist.

Definite Cause.—Working in cold water. Prolonged application of cold, with no means of recovering heat during the resting hours. As a definite cause, this seems to be pretty well established in this case. Just why it should produce in him this trouble I know not. Whether others working with him were similarly affected could not be ascertained.

Tired Sensation.—This was a most prominent symptom, and patient could lie in no position without experiencing it. Sleep brought no rest. Limbs always felt as though they had been used for some time.

Absence of "Air-hunger."—As a symptom, dyspnœa is considered almost pathognomonic or essential, but in this case it was never marked. On exertion the patient would have slight dyspnœa, but it was hardly noticeable.

Absence of Palpitation of the Heart.—This was a special point of inquiry, but the patient always denied its existence. Why it should be absent when the heart and blood changes were so marked is hard to fathom.

Presence of Leucæmia—for clearly a leucæmia was present, there being but a few white cells present in any specimen examined. The estimated proportion of the cells, as seen, was one white to one hundred red.

Inadequacy of Treatment—quinine, Warburg's tincture, iron, and arsenic proving of no avail. If the disease had been recognized early, the arsenic would have been pushed, but it was not, and the pneumonia supervened so early that no manifest change was noticeable from its limited use.

Duration.—This was about thirteen weeks. But the disease was complicated by the pneumonia, and it was the immediate cause of death. But the patient was so weak, pulse so thready, that it would seem a question of but a few weeks with him when the disease itself would have killed. A duration, then, for this case of from fifteen to twenty weeks would seem to be most reasonable.

Presence of Post-mortem Rigidity.—This was hardly expected. The patient had been sick so long and the blood was so poor in coagulability that the muscle-clot (myosin) and muscle-plasma were hardly expected to contract at all. Yet a very decided rigor mortis was present sixteen hours after death.

Presence of Chronic Interstitial Hepatitis.—This pathological change was one of the most prominent changes present, and it was quite marked. Large "hob-nails" studded the entire liver surface, and new fibrous tissue traversed the liver in all directions. The presence of this condition is significant, and our case requires careful study. Could it be one of cirrhosis of the liver and not pernicious anæmia? Many of the symptoms were those of cirrhosis—

gastro-enteric catarrh, pyrexia, enlargement of the spleen, and jaundice. Yet there were present many symptoms which could not be dependent upon cirrhosis—diminution of red and white corpuscles, profuse losses of blood, hæmorrhages into the retinae, and hæmic murmur. This condition complicating the trouble makes an interesting case, and I would call attention to the fact that the two diseases can make a very similar array of symptoms, and care must be taken in separating them. In this case cirrhosis was never suspected, as no clear history of drinking could be obtained.

PRELIMINARY NOTE ON THE STUDY OF EXOPHTHALMIC GOITRE.

BY LOUISE FISKE-BRYSON, M. D.

CAREFUL observations in a certain number of cases of exophthalmic goitre would seem to indicate that, however inconstant and variable the presence of symptoms hitherto considered pathognomonic of this strange and unexplained disease, distinctive, fixed conditions prevail, and that these perhaps afford the only rational basis for prognosis.

Such a condition is diminished chest expansion. This is accompanied by increased respiration and frequently by cough. In all the cases examined—the examinations in several instances being repeated at regular intervals for many months—this symptom was constant, varying only in degree. In severe cases the chest expansion on forced inspiration was half an inch, and sometimes less. A chest expansion of one inch or more, on forced inspiration, was considered sufficient ground for a favorable prognosis, in spite of persistent loss of strength and the presence of classical symptoms. Every case examined, with possibly a single exception, gave evidences of present or previous disease of the respiratory tract, usually chronic rhinitis, pharyngitis, or bronchitis. Appropriate measures directed to this locality have been followed by marked improvement in the general condition. Dampness increases the respiratory difficulty and aggravates other symptoms, notably the depressive symptoms of the mental state.

Respiratory Tract.—Diminished chest expansion, frequent respiration, cough, evidences of past or present chronic pharyngitis and rhinitis, of bronchitis; and certain conditions resembling those that prevail in angina pectoris and asthma. Peculiar catching of the breath at regular intervals when reading aloud.

Digestive Tract.—Excessive thirst; sudden hunger; nausea; vomiting; characteristic diarrhœa (sweating of the intestine), coming on suddenly and lasting a few days, a few weeks, then disappearing, possibly returning again at irregular intervals throughout the course of the disease, and remaining as a constant symptom toward the close of life in fatal cases.

Skin.—Perspiration, urticaria, eczema, petechiæ, local or general pigmentation. Transient brown spots, isolated or in groups, appear during the course of the disease, and sometimes bronzing of the skin. A woman of the German peasant class—neck measurement seventeen inches and three quarters, chest expansion on forced inspiration less than

half an inch—presented complete bronzing of the skin, with darker areas about the neck, temples, and chest. Whatever abnormality of the skin may exist, the irritation caused by it is out of all apparent proportion to the lesion. In a late stage of fatal exophthalmic goitre in a woman every trace of hair had disappeared from the entire body, with the exception of the eyebrows and a fairly good-sized oval-shaped growth partially covering the vertex and occiput. The hair being long, it was possible to conceal the denuded spaces. There was every reason to suppose that in time the alopecia would have become general. The patient stated that she was always wringing wet from perspiration, and the hair had rotted out in consequence.

Genital Tract.—Leucorrhœa, menorrhagia, metrorrhagia.

Muscles.—Tremor. A kind of paresis—sudden loss of power—of the lower limbs that causes stumbling and falling; von Graefe's symptom absent in the case of two negroes. A slight increase in the size of the muscles of the left side, making the measurements equal to those of the right.

Ophthalmoscopic Examination.—Practically negative.

Mental State.—At first and for a short time there is great depression of spirits, with tearfulness, irritability, specified fears or general apprehension. This gives way to a condition of hopefulness that eventually becomes "desperate cheerfulness" as the disease progresses. L. S., a few days before her death, enjoyed making plans for a short stay in some hospital, to be followed by a trip to the mountains. Her symptoms at that time were of the most exaggerated type, together with weakness so profound that the patient could not raise herself or turn over in bed. M. R. reported that when ill-health compelled him to give up business the previous year he had been melancholy beyond expression. "But now," he added buoyantly, "I believe I could spend all my capital, and borrow money if necessary, without feeling it so very much." Accompanying or growing out of this desperate cheerfulness there often exists an absurd and perfectly useless mendacity. Commonly it has no more reason for being than the mendacity of hysteria, though there may be some foundation in fact for what the patients say about themselves. Whoever studies carefully and persistently the characteristics of persons suffering with exophthalmic goitre will be struck with the fact that, whatever the degree of their natural or acquired timidity, they all have a remarkably good opinion of themselves and a strong desire to impress others with a realizing sense of their virtues and accomplishments, and urge their claim to special consideration on the ground of some cherished quality that seems to raise them above their natural station in life. A young girl of the German peasant class replied, in answer to varied and apparently off-hand questions extending over a period of weeks, that she could play and sing extremely well, could read aloud in a fascinating manner, and dance charmingly. The only accomplishment the writer had an opportunity to test was that of reading. This proved to be clear in point of enunciation, but expressionless and non-intelligent, performed with the same regular catching of the breath that characterizes this disease (and perhaps others). M. R. said he could play on every known musical

instrument. W. F. says that she sings, plays, dances very well, and speaks German. She belongs to a social class in which such accomplishments are not common. S. L., a negress, is forty-five years old, and looks fully twenty years younger. She is very proud of this distinction, and of her neat, stylish appearance, and of her correct views of life. L. S. was, according to her own statement, a linguist and a musician. Dreams (which the patients are unwilling to speak about) are not the least of the many annoyances that appear in the complex of symptoms known as exophthalmic goitre. Persistent and tactful questioning, repeated at intervals, will serve at last to elicit about the same history of dreams, which are terrifying in their nature, of harmful *black* objects—rats, toads, reptiles, animals, men—in pursuit of prey. Sleep is disturbed and unrestful. There are jerking of the limbs, sudden starts, and occasional outcries.

Exophthalmic goitre may exist simultaneously with some other constitutional trouble, such as migraine, hysteria, Addison's disease, diabetes, and myxœdema. Often there is a history of infectious disease during childhood that seems to have been the starting-point of marked alteration in nutrition, as scarlet fever, inflammatory rheumatism, etc. There is but little reason to imagine that exophthalmic goitre starts up out of space and hits its victim like a thunderbolt out of a clear sky. It is more reasonable to suppose that the way has been prepared earlier.

When exophthalmia is absent, it is possible—more than that, it has been done—to mistake Graves's disease for tuberculosis or malarial fever, especially when the latter is of an irregular type. The following general comparison of symptoms makes the differential diagnosis somewhat apparent:

Tuberculosis.	Exophthalmic goitre.	Malarial fever.
Chilliness now and then.	Tremor.	Chills.
Fever.	Fever.	Fever.
Cough.	Cough.	
Increased respiration.	Increased respiration.	Increased respiration during fever.
Dyspnoea on exertion.	Dyspnoea on exertion, or in damp weather, or coming on suddenly without apparent cause.	
Sweats.	Sweats.	Sweats.
Diarrhoea.	Diarrhoea.	
Pallor and hectic flush.	Pale yellow tint; bronzing of skin; pigmentation; eruptions.	Jaundiced hue; pigmentation.
Hopefulness and courage.	Desperate cheerfulness; easily cowed.	Melancholy.
Loss of flesh.	Loss of flesh.	
Pulse: No uniform relation to temperature; always feeble, varying rarely in rhythm, and accelerated by slight causes.	Pulse: No uniform relation to temperature; often feeble, varying frequently in rhythm, and accelerated by causes so slight as to be almost inappreciable.	Pulse: Bears a somewhat regular relation to temperature.
Anæmia.	Anæmia.	Anæmia.

Treatment.—General hygienic measures, the first of which is to get the patient as far away from the ground floor as possible and from all sources of dampness. Inland—especially a mountain region of moderate altitude—seems emphatically the choice location for vacations or a change

of air. The common report is that a stay at the sea-shore makes life a perfect burden, increasing the respiratory difficulty and bringing back depression of spirits. Damp days have the same unfortunate effect. A salt sponge bath, followed by friction—lower limbs first, upper limbs, trunk, neck, and head—two or three times a week, induces a more healthful action of the skin. Alcoholic and malt liquors must, as a general thing, be discarded, together with sweets and fried food. Regular rest and regular exercise should be prescribed according to careful direction, like any other medicine.

Drugs.—The iodides, nux vomica, carbazotate of ammonium, and strophanthus have given good results. The iodides are contra-indicated when there is much respiratory difficulty. Jaccoud gives arsenious acid night and morning, and bromide of potassium between meals. Friedrich advocates quinine for an indefinite period.

Strophanthus (Kombé arrow-poison) was first presented to public notice by Professor T. R. Fraser, of Edinburgh (see "British Medical Journal," November 14, 1885). "However introduced into the body, it increases the contractile power of all striped muscles, and renders their contractions more complete and prolonged. . . . As a result of the action on muscle, the heart is early and powerfully affected. It receives a larger quantity in a given time than any of the other muscles of the body, and therefore it is probable that strophanthus affects its action more distinctly and powerfully than it does that of the other striped muscles." Strophanthus is without cumulative effect, is antipyretic, diuretic, and promotes appetite and digestion (Bartholow). It has a marked central effect upon the vagus ("Reference Hand-book of Medical Sciences").

The following interesting items are copied from the history and the report of the autopsy of Dr. J. West Roosevelt's case, which he has courteously furnished for the greater completeness of this preliminary note:

Patient, woman, aged forty-seven years; father died of phthisis, maternal uncle insane; no knowledge of other neurotic trouble in family. . . . Over lungs, resonance of exaggerated type. There are places where coarse and fine liquid râles are heard. . . .

DATE.	Pulse.	Respiration.	Temperature.
May 25	120	38	100°
May 26	128	48	98
	120	40	100
	120	38	98
May 27	112	38	98·6
	118	32	98·8
May 28	108	34	98·4
	116	32	99
May 29	116	32	98
	108	34	98·4
May 30	112	32	98·6
	100	28	98
May 31	100	28	99·2

Autopsy.—Diaphragm on right side rises to the fourth space; on the left to the fifth space. Lung: Small, dark-pink in color; left lower lobe is œdematous and shows commencing red hepatisation; pleural cavities normal. . . . Bronchial and mediastinal glands enlarged and deeply pigmented. . . . Heart: Normal size; muscle looks normal; coronary arteries somewhat thickened; mitral and aortic valves slightly but distinctly thickened.

. . . Stomach and intestines: Mucous membrane throughout thickened and coated with mucus. . . . Liver: Smaller than normal, dark in color. . . . Brain: Vessels at the base somewhat thickened. . . . In pia mater over middle peduncle of the cerebellum, small, flat new growth about the size of a filbert, which does not seem to have pressed on anything. . . . Pneumogastric and sympathetic nerves look normal.

Microscopic Examination.—Negative.

The study of a special subject has convinced me that the medical profession is a fraternity full of generosity and *esprit de corps*. While I have been the recipient of the greatest kindness from many physicians, in New York and elsewhere, in regard to opportunities of observing and investigating cases, to Dr. Edward C. Seguin I am indebted for special courtesy.

38 WEST THIRTY-EIGHTH STREET.

A CASE OF POISONING BY COAL GAS.

SLOW RECOVERY. HEROIC TREATMENT.

By JEFFERSON C. CROSSLAND, A. M., M. D.,
ZANESVILLE, OHIO.

In vol. 1, No. 17, of this Journal there appears an article on poisoning by illuminating gas from the pen of Dr. W. C. Kloman. This article is written partly to correct some false impressions contained in Dr. Kloman's article, but especially to record a case which the writer considers interesting, instructive, and in some particulars exceptional. Illuminating gas, no doubt, produces death by the carbon monoxide of the gas combining with the hæmoglobin of the blood.

As to the comparative amount of carbon monoxide in water gas and coal gas I am uninformed, and therefore accept Dr. Kloman's statement.

However, the case of Dr. Kloman, and that shortly to be described by the writer, do not seem in accord with the comparative amounts of carbon monoxide in the two gases.

On November 20, 1888, Mary S., a muscular young woman of excellent physique, applied at the Kirk House, at 10 P. M., for lodging. It was subsequently learned that she had been employed as a domestic for about a year in the western part of Ohio, and was on her way home, having stopped here for the night, and intending to take the morning train for her home in a coal district in an adjoining county. She was unable to write, and the clerk placed her name on the register, with a call for 5 A. M. She was assigned a room, and immediately retired. At 5 A. M. the clerk went to her room to call her. On approaching her room, the clerk found the hall fragrant with the odor of gas, and, recalling the illiteracy of this guest, suspected she had blown out the gas. He made violent raps on the door, and, receiving no response, broke it open. There on the bed lay the young woman, apparently hopelessly asphyxiated by the gas. The stop-cock was examined and found to be turned on full. The gas was shut off. The door was opened and a window raised. The room was a very small one, not exceeding 10 by 10. Dr. C. Draper was called, and when he arrived found the patient in the following condition: Respiration stertorous, shallow, and abounding in mucous râles; radial pulse merely perceptible; eyes partly open, fixed, and insensible to touch; pu-

pils moderately dilated and not reacting to light; conjunctivæ congested. There was marked lividity about the face and extremities. The patient was cold and moribund.

Seeing that the ventilation of the room and the vigorous atmosphere of a November morning had had no effect in restoring the girl, Dr. Draper administered stimulants hypodermically and Dr. E. C. Brush was called in consultation. After the arrival of Dr. Brush, treatment by stimulants, hypodermically administered, was continued until 9 A. M. without the least improvement in the condition of the patient. At this hour I was called in consultation, and, being informed as to the nature of the case, I took with me a galvano-faradaic battery and a drachm phial of a one-per-cent. solution of nitroglycerin prepared by Parke, Davis, & Co.

Fifteen minims of the nitroglycerin solution were injected in the epigastrium. The good effects of this on the heart action were perceived in about five minutes. It was soon evident to us, however, that several hours would elapse before the system could throw off the poison sufficiently for the patient to regain consciousness. We soon learned, by observing the effects of our remedies, that nitroglycerin was the remedy *par excellence*, and we made it our anchor remedy throughout the treatment. No exact record of the treatment having been kept, I shall have to generalize somewhat. The treatment by hypodermic injections, chiefly of nitroglycerin, was continued at intervals varying from thirty minutes to two hours, according to the indications. At 3 P. M. the vital powers were almost collapsed, and death seemed imminent. Twenty minims of the nitroglycerin solution were injected over the epigastrium, and the poles of the battery applied to the regions along the track of the pneumogastric nerve. Artificial respiration was practiced. In an hour the condition of the patient was as good as it had been at any time since 9 A. M.

This line of treatment was kept up till 2 A. M., when, by the use of a strong current from the battery and slapping the face with a wet towel, the patient seemed to notice those in the room. At 3 A. M. she had so far recovered from the effects of the poison as to mutter "Don't" in protest against the use of the battery and slapping the face with a wet towel. At 4 A. M. she could answer questions, and expressed a desire to defecate. Fearing evil results from allowing her to remain up long enough to defecate, we furnished her with a bed-pan, which she insisted she could not use.

We allowed her to get up, but she could not have a stool. She was no sooner in bed than she desired to get up, and several times she was placed on the chair without an action of the bowels. Thinking this desire to defecate only rectal tenesmus, I administered an injection of morphine in the perinaeum, and the desire to defecate ceased. From this time the patient went on to a rapid recovery. She was not, however, able to leave her room for two days, and left the hotel on the third day.

Nitrogenous Contents of Sputum.—“Dr. M. Panoff has examined the sputum of patients suffering from various forms of lung disease with the view of ascertaining the amount of nitrogen expectorated. The details of his results are given in No. 2 of the St. Petersburg Dissertations for the session of 1888-'89. The estimations, which, of course, included both the liquid and precipitated portions of the sputum, were made by means of the Kjeldahl-Borodin process, the general result being that the greatest daily expectoration of nitrogen was 1.14 gramme, and that the sputum which contained the largest amount of nitrogen, both when reckoned by the total daily expectoration as well as by its percentage composition, was that of phthisical patients, while, on the other hand, that which contained the least nitrogen, both absolute and relative, was that occurring in cases of bronchitis and croupous pneumonia.”—*Lancet*.

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MEDICAL STATISTICS.

It is a curious fact that medical men in general, while frequently making use of statistical data, seem to have but little knowledge of their real value. Dr. Billings, in the Cartwright Lectures, sets forth in a most interesting manner a number of facts in regard to the data needed, some of the modes of obtaining them, some common errors and omissions, and some of the ways of judging of the probable accuracy of the figures. If medical men would realize how important these points are, how necessary it is to know what to tabulate and what to omit, how many cases are needed in order to furnish material from which to draw inferences, and how greatly these numbers differ when different problems are to be studied—if they comprehended that, owing to the omission of certain facts, tables, no matter how extensive, may be worse than worthless—it is probable that we should be saved much work and should get more knowledge.

Perhaps the most important thing to learn in dealing with statistics is that the results are true of masses, but not necessarily of individuals. "The results of medical statistics," says Dr. Billings, "will not apply to the treatment of any particular case. They can never prove that bloodletting should be employed in all cases of pneumonia or that it should never be applied in any case of pneumonia." It is too frequently the case that men attempt to make statistics prove that a course of treatment which has seemed beneficial in a large number of cases is, therefore, applicable to each case individually. Now, although a large mass of cases may serve to give the average results of treatment, yet in that mass there are many cases which depart from the average, and it is quite possible that treatment which has given good average results should have been fatal to a certain number of individuals, have injured some, in no way have affected others, have saved the lives of many, and have shortened the course of the disease in the rest. It is well to bear in mind that a number may have been killed or injured, though the average results are better. It is utterly wrong to reason from facts obtained which apply to masses, when the individuals composing the masses are to be considered. Suppose that in a given disease ten per cent. die, as shown by large masses of figures, say 100,000 cases. Does this mean that the chances in any one case can be represented as one in ten that death will result? Not at all. The chances in that case may be enormously in favor of the patient's recovery or of his death. It would be as foolish to assume that the average represented the actual chances as to think that it indicated the death of one tenth of each person, instead of one tenth of the mass.

The numbers needed to establish any facts of value in different cases, the margin of error, the absolute necessity of recording sex and age—these and much else of importance Dr. Billings mentions. His lectures should teach those who use or make medical statistics that it is needful to understand what to record and what can really be deduced from the records.

PROTECTION APPLIED TO THE PRACTICE OF MEDICINE.

THE very large number of Americans who winter in the south of Europe, whether for purposes of recreation or for the recovery of lost health, will hear with astonishment and dismay of the recent action of the French Government concerning English physicians practicing abroad. Formerly a foreign physician wishing to practice in the Riviera could qualify by reporting himself at Marseilles and passing the by no means insignificant examination for the grade of *officier de santé*. This was a considerable obstacle and deterred many from pitching their tents in the French winter resorts. But it seems that even this protection is not sufficient. At Nice, Cannes, and Mentone—places, be it remembered, built up entirely by the recommendations of English physicians—the whole of the English and American practice (and very good practice it is in the season) has been in the hands of the well-established English-speaking physicians settled there. This state of affairs seems to have caused a great deal of jealousy among the native doctors, who, as elsewhere on the continent, regard Anglo-American travel as an institution specially devised by Providence for their maintenance. Pressure has been brought to bear upon the French Government, by the representatives of these persons, of such weight as to force M. Fallières, the Minister of Public Instruction, to inform the English ambassador in Paris, with respect to English medical men who may be seeking authority from the French Government to practice in France, that it will not be possible in future for his Department to give the same favorable consideration to applications of this kind as has hitherto been accorded them, whether received directly by the Minister or through the British Embassy, and that the applications will be refused unless "in instances presenting very exceptional claims."

The meaning of this pronouncement is plainly to the effect that after date no English doctor is to practice in France. Those who have already gained a high professional position in the cities and towns which Englishmen and Americans most frequent will, it is presumed, not be expelled; but they are not immortal, and a few years will see the race die out, and then the French doctor will have it all his own way; he alone will have the honor and glory of looking at the tongue and feeling the pulse of John Bull and Brother Jonathan.

We regard this as a very serious matter, requiring joint action on the part of our Government and that of Great Britain. When we consider the vast number of our countrymen who spend their time in France, it seems outrageous that they should practically be denied the privilege of obtaining necessary advice, to say nothing of sympathy and consolation, from

one speaking their own tongue. A foreign doctor in no way takes the place of one accustomed to our ways of thought and action, even if he does speak English or even if we do speak his language. The French law, if carried out, will render it a punishable offense for a young American or English doctor to travel with a patient in France, and a New York or London consultant will not find in foreign cities a physician to whom he can transfer a patient whose case requires careful explanation.

If the French Government would but inquire into the causes of the influx of visitors to these winter resorts, it would find that the Anglo-American immigration originated largely in the recommendations of those speaking our language. Smollett, an English doctor, brought Nice to public notice. What would Cannes, with its sixty hotels and its floating population of ten thousand, be to-day were it not for the notice into which it was brought by Lord Brougham, and for the recommendations of such authorities in chest disease as Williams and Walshe? As for Mentone, it was made by Bennett. And now, having enjoyed for so many years the products of the conversion of the English sovereign and the American dollar into the French franc, the Department of Public Instruction of the Republic is about to perform that old operation described in detail by Æsop and known to the public as killing the goose that lays the golden eggs.

MINOR PARAGRAPHS.

DRYNESS OF THE THROAT.

FROM the "Medical News" we copy a formula used by Dr. Solomon Solis-Cohen for the relief of dryness of the throat and mouth, which characterizes both acute and chronic morbid conditions of the mucous membrane. The following ingredients are compounded in the form of a lozenge, to be dissolved gradually in the mouth:

Fluid extract of pyrethrum.....	2 to 3 minims;
Pilocarpine hydrochloride.....	$\frac{1}{2}$ grain;
Pure extract of licorice.....	2 grains;
Powdered acacia....	2 "
Glycerin.....	1 minim;
Sugar, enough to make.....	20 grains.

One of these may be taken every two, three, or four hours, as may be indicated. Speakers and singers have informed the author of the preparation that the taking of some such lozenge just before a lecture or concert has enabled them to perform their part with comfort, which otherwise would have been attended with both pain and fatigue.

BAD SPIRIT OF NITRE IN PHILADELPHIA.

DR. H. A. HARE, in the "University Medical Magazine," reports twenty-five examinations of sweet spirit of nitre bought by him at widely separated apothecaries' shops in Philadelphia. Fewer than half of his samples were found good or very good; eight of them were rated as very poor or absolutely devoid of ethyl nitrite, and five were poor. One sample, utterly worthless, was obtained from a shop which for a generation has borne the reputation of a paragon of correctness. The weak specimens were not, as a rule, sold in the more pretentious shops, although there were three such. This result is startling. We do not suppose that, in this particular, there is any greater security in one city than in another, but no such result should

have been found in any town that makes drugs for the country at large. Again, the discovery is an unpleasant one in view of the increasing tendency to use the nitrites in a wide range of diseased conditions. New nitrites have been introduced of late years, but a good article of the sweet spirit of nitre still has a strong therapeutical standing. The test used by Dr. Hare was a solution of antipyrine, ten to twenty grains in the ounce of water. This reveals the presence of ethyl nitrite by causing a deep green color to appear, the reaction being the formation of isonitrosoantipyrine. Dr. Hare used this test in preference to other older ones recommended by the chemists, as being the more suitable to the purposes of the general practitioner.

DITHIOSALICYLATE OF SODIUM.

THE "Therapeutic Gazette," quoting from the "Revue générale de clinique et de thérapeutique," states that Dr. H. Linderborn recommends this drug as a substitute for salicylate of sodium. It is formed by the combination of two atoms of sulphur and two molecules of the salicylate of sodium, is a very hygroscopic, grayish-white powder, and is very soluble in water. Various micro-organisms are said to be destroyed in forty-five minutes by the twenty-per-cent. solution. It arrests articular rheumatism and is efficacious in the treatment of gonorrhœal rheumatism. It does not produce gastric trouble, ringing in the ears, or any tendency to collapse.

THE IMPORTANCE OF RE-VACCINATION.

THE "London Medical Recorder" quotes from a pamphlet by Dr. Gerstacker on the sanitary importance of re-vaccination as exemplified in Germany since 1874. That was the year in which the re-vaccination of school-children was enforced, the result of which, according to Dr. Gerstacker, has been the almost total extinction of small-pox. From that year the German army began promptly and strikingly to feel the effect of the law, although no difference was intended or carried out in the army regulations. Dr. Gerstacker places the average duration of the protection against small-pox at ten years.

RICORD'S LIBERAL BEQUESTS.

ACCORDING to the "Lancet," the will of Dr. Ricord gives to the Paris Academy of Medicine ten thousand francs for the establishment of a biennial prize which shall bear his name. A like sum is left to the General Association of Medical Men in France. Five thousand francs have been bequeathed to the Society of Surgeons to found another biennial prize fund. To the Hôpital du Midi he has left his extensive library, as a memento of his half-century of work and interest, and it is in contemplation to change the name of the hospital so that it shall henceforth bear the name of Ricord.

CHINESE MEDICAL DEPARTMENTS.

THE Chinese Government proposes to create a new form of surgical administration, in regard to both its army and navy. The bureau, in the case of each of them, will be modeled on Occidental methods. Requests for information have been presented to the Government at Washington as to hospital organization and ambulance work in this country. The surgeon-in-chief will probably be a foreigner, with a considerable staff of native assistants who have been trained in European and American schools. A beginning will be made in northern China, by the establishment of a medical college and of several hospitals and dispensaries at points where there are already military stations.

THE CREDIT SYSTEM IN MEDICAL EDUCATION.

In the French medical colleges in Canada a curious system of educating on credit has existed for some years. The poor and proverbially honest country boy who wishes to be a doctor, but who has no money for his fees, can, if properly recommended, be provided with lecture tickets and a degree, for which he gives his promissory note, which we hope is well backed. When the young graduate begins to feel the fees dropping into his pocket he is supposed to repay with grateful interest the advance his Alma Mater has made him. Unhappily, this is not always the case. According to the "Montreal Star," the Montreal School of Medicine and Surgery has just won an action in the Circuit Court against one of its former students, who, it was proved, had given it a note for \$75 to cover his tuition fees for one term, but which he left unpaid. Another case of a similar kind is pending against another physician, who, however, is said to have come to the United States.

DR. VON HOFMANN'S DEATH BY GLANDERS.

The death of Dr. von Hofmann, of the University of Vienna, has been the occasion, says the "British Medical Journal," of some erroneous statements, among which was one to the effect that he had become inoculated with a hypodermic syringe which had been in use in bacteriological work. The "Journal" holds that the extensive intrathoracic disease, as shown by autopsy in this case, indicates beyond question an infection through the respiratory tract. The exact source of the infection will never be known.

THE STILLÉ LIBRARY.

The Medical Library of the University of Pennsylvania contains over 3,500 volumes, the gift of Dr. Alfred Stillé. Other contributions at various times by Dr. Joseph Leidy, Dr. William Elmer, Dr. Joseph Carson, Dr. W. H. Taggart, and Dr. H. C. Wood, bring the total to about 6,000 bound volumes and 5,000 pamphlets. To these there has been added, quite recently, a contribution of special value from Dr. William Pepper, including a large share of his own medical library and many books that formerly belonged to his father.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 10, 1889:

DISEASES.	Week ending Dec. 3.		Week ending Dec. 10.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.	24	10	17	5
Scarlet fever.	40	2	71	6
Cerebro-spinal meningitis	0	0	2	2
Measles	30	5	46	5
Diphtheria.	73	17	94	26
Varicella.	5	0	5	0

Wards for Convalescents.—It is announced that there are two convalescent wards at the Isabella Heimath, each containing fourteen beds. They are intended for convalescents who have no home in which they can find rest and care. The trustees are ready to admit, for a term not exceeding four weeks, convalescents of either sex needing care and rest after acute internal diseases or surgical operations; and no distinction will be made on account of creed or nationality. Applications, bearing the indorsement or recommendation of the attending

physicians or surgeons, should be addressed to the consulting physicians, Dr. August Caillé, 185 Second Avenue; Dr. A. G. Gerster, 56 East Twenty-fifth Street; Dr. A. Jacobi, 110 West Thirty-fourth Street; and Dr. H. G. Klotz, 222 East Nineteenth Street.

The Orthopædic Dispensary and Hospital.—At the anniversary meeting of the directors of the Orthopædic Hospital, the report of the work for the past year showed not far from 2,000 patients treated. On the part of the medical profession, Dr. Newton M. Shaffer and Dr. John T. Metcalfe made addresses, and emphasized the fact of the constantly increasing demands upon the medical staff, and of the almost immediate necessity for adding to the accommodations of the building at present occupied.

The Babies' Wards at the Post-graduate Hospital.—A reception to the profession and public will be held in the new building devoted to the babies' wards, at No. 222 East Twentieth Street, on Wednesday, the 18th inst., from 2 to 4 p. m. The steady growth of this important work of the hospital during the past five years has finally called for a separate building given up entirely to sick infants. The wards are under the medical care of Dr. Henry D. Chapin, with Dr. J. H. Ripley as consulting physician. The fifth annual report of this hospital announces that the last has been the busiest year of any in the history of the hospital. This institution was the first to secure special care for babies, and, thus far, has been the only place where such work has been carried on continuously. During the eighteen months since the last report was issued, 486 house patients—153 babies and 333 adults—have been treated; 8,086 new patients have been treated in the dispensary, where 32,194 visits have been made. The district physician of the dispensary, Dr. F. C. Carpenter, has treated 263 patients in their homes. An orthopædic ward for children has lately been added to the hospital, and whenever the funds are at the disposal of the directors, a lying-in ward will also be added. This is a much-needed charity—one that appeals at once to all who desire earnestly to relieve and prevent suffering. Contributions to the Post-graduate Hospital may be sent to the treasurer, Dr. L. Bolton Bangs, 226 East Twentieth Street, New York.

The Northwestern Medical and Surgical Society gave a social entertainment at Dr. Thomas H. Burchard's house, on the occasion of its twentieth anniversary, November 27th, including an excellent musical performance by members of the society and others.

The Society of the Alumni of Charity Hospital.—At a meeting held on Tuesday evening, the 10th inst., Dr. Joseph O'Dwyer showed some new instruments, and Dr. A. T. Muzzy read a paper on "The Prevention of Ophthalmia Neonatorum." Officers for the ensuing year were chosen as follows: President, Dr. D. Bryson Delavan; vice-president, Dr. Ramon Guitéras; secretary, Dr. W. L. Baner; treasurer, Dr. A. T. Muzzy.

A Medical Official Exonerated.—Dr. Remsen Taylor, the health officer of Long Island City, has been under investigation for extortion, by the Grand Jury of Queens County, and has received an official vindication.

The Hypnotic Society of London.—The "Lancet" states that a number of London medical men have united to form a Hypnotic Society, the purpose of which will be to prevent by law public exhibitions of mesmerism and hypnotism. Another object will be to study privately and in a scientific manner the phenomena of those morbid states.

The Kings County Medical Society.—At the December meeting, on the 16th inst., the Committee on Obstetrics is to

make its report, inclusive of papers by Dr. Charles Jewett, Dr. R. L. Dickinson, and Dr. George McNaughton. Their subjects will be, in part, puerperal wound-infection, immediate repair of the uterine cervix after labor, and a case of separation of the pubic symphysis.

Dartmouth Medical College.—On November 26th the medical department held its commencement. The graduating class numbered twenty-one.

Society Meetings for the Coming Week:

MONDAY, December 16th: New York Academy of Medicine (Section in Ophthalmology and Otolaryngology); New York County Medical Association; Hartford, Conn., City Medical Association; Chicago Medical Society.

TUESDAY, December 17th: New York Academy of Medicine (Section in Theory and Practice of Medicine); New York Obstetrical Society (private); Medical Society of the County of Kings; Ogdensburgh Medical Association; Medical Societies of the Counties of St. Lawrence (semi-annual) and Westchester (White Plains), N. Y.; Hunterdon, N. J., County Medical Society (Flemington); Baltimore Academy of Medicine.

WEDNESDAY, December 18th: Northwestern Medical and Surgical Society of New York (private); Harlem Medical Association of the City of New York; Medical Societies of the Counties of Allegany (quarterly) and Tompkins (semi-annual—Ithaca), N. Y.; Strafford, N. H., District Medical Society (annual—Dover); New Jersey Academy of Medicine (Newark).

THURSDAY, December 19th: New York Academy of Medicine; Brooklyn Surgical Society; New Bedford, Mass., Society for Medical Improvement; Addison, Vt., County Medical Society (annual).

FRIDAY, December 20th: New York Academy of Medicine (Section in Orthopaedic Surgery); Chicago Gynecological Society (annual); Baltimore Clinical Society.

SATURDAY, December 21st: Clinical Society of the New York Post-graduate Medical School and Hospital.

Proceedings of Societies.

SOUTHERN SURGICAL AND GYNÆCOLOGICAL ASSOCIATION.

Second Annual Meeting, held in Nashville, Tenn., November 12, 13, and 14, 1889.

The President, Dr. HUNTER MCGUIRE, of Richmond, Va., in the Chair.

Report of Gynecological Work, with special Reference to Methods.—Dr. R. B. MAURY, of Memphis, Tenn., contributed a very interesting paper with this title. The paper presented a brief summary of the more important portion of his operative work during the past year. With four exceptions, all of the operations reported were done in a private hospital, built especially for the purpose, and under his own control. The summary embraced twenty-one laparotomies for the removal of ovarian tumors, or of the uterine appendages, or for the relief of obscure disease within the abdomen; two laparotomies for ectopic gestation; twenty-eight operations for laceration of the cervix; fourteen perineal and vaginal prolapse operations; five proctoplasties; and four anterior colporrhaphies. The speaker summarized the methods as follows: 1. An antiseptic field of

operation and an aseptic surgeon. 2. A small incision—in the case of inflammatory disease in the pelvis—just large enough to introduce and work with two fingers. 3. Aseptic silk ligatures, as fine as may be consistent with safety in tying. 4. Enucleation of diseased structures, in spite of firm adhesions and even profuse hæmorrhage. 5. Irrigation by means of the siphon-trocar as a substitute in most cases for sponging, using simple hot water for this purpose and excluding all antiseptics. 6. Drainage often, and whenever one is in doubt as to its necessity. 7. Careful replacement by spreading out of the omentum before proceeding to close the wound. 8. Inclusion of all the structures in passing the abdominal-wall sutures, and replacing the deep sutures half an inch apart. 9. The use of means for moving the bowels on the second or third day after removing the appendages; and the avoidance, if possible, of opium.

Direct Kelotomy.—Dr. W. O. ROBERTS, of Louisville, Ky., read a paper on this subject, in which he reported ten cases and eleven operations. Seven cases had occurred in females, three in males. There had been three cases of umbilical hernia, three of femoral, three of inguinal, and one of ventral. Six of the operations had been done during strangulation, while five had been performed for troublesome irreducible hernias. In the six cases of strangulated hernia the sexes had been equally represented. There had been three inguinal, two femoral, and one umbilical. In five of them the operation for radical cure had been done. The remaining case had been one of strangulated hernia, where stercoraceous vomiting had existed for eight hours before it was seen. General peritonitis had been evident at the time of the operation. Considerable reddish material had escaped when the contents of the sac were returned. Death had followed in thirty-six hours. He had since thought that if, after returning the contents of the sac, he had done a low median laparotomy and washed out the peritoneal cavity, the result might have been different.

The four cases of irreducible hernia had been all in females. Two had been umbilical, one femoral, and one ventral. In one of the former a second operation had been made necessary by the hernia recurring at the end of six months. The tumor also had reformed at the end of ninety days in the case of femoral hernia. The remaining eight patients continued well to the present time.

In all the cases the sac had been first cleanly dissected out and not opened until all hæmorrhage had been entirely checked. In both the ventral and umbilical hernias the integument and fascia had been divided by an elliptical incision. After opening the sac, all adherent omentum had been tied with catgut and excised. The remaining contents had then been returned into the cavity. In one case of umbilical hernia the neck of the sac had been tied close to the margins of the opening and cut away immediately in front of the ligature. The stump had then been fastened tightly in the opening with silk-worm gut sutures, and the wound finally closed by interrupted sutures of the same material. In this case no suppuration had occurred, but the hernia had recurred at the end of six months. In both the other umbilical and in the ventral hernias the neck of the sac had been excised on a level with the abdominal opening and sutured with catgut. The opening itself, after its edges had been freshened, had been closed with the continued suture of chromatinized catgut in the ventral hernia, and aseptic corded silk in the umbilical cases. The superficies had been brought together by silk sutures, which had been continued down to the aponeurosis.

In the femoral hernias he had adopted the practice of Mitchell Banks. In the cases of direct inguinal hernia, after tying the neck of the sac just within the ring, and removing all in front of the ligature, the ring was closed with catgut sutures.

In the cases of oblique inguinal hernia he had done Mr. Ball's operation, which consisted in freeing the neck of the sac up to the internal opening, ligating it, cutting away all in front of the ligature, then twisting the neck upon itself to effect closure of the peritoneal orifice, and finally stitching the stump to the pillars of the ring to guard the neck against untwisting itself.

The Abortive Treatment of Acute Pelvic Inflammation.

—Dr. VIRGIL O. HARDON, of Atlanta, Ga., read a paper on this subject, in which he said that the views held by gynecologists in regard to acute pelvic inflammation in the female had within the past few years undergone a radical change. The inflammatory processes formerly regarded as idiopathic, or at least as primary affections, were now almost universally recognized as dependent upon antecedent disease in the ovaries or Fallopian tubes, especially the latter. This change of opinion had to a large extent been due to the result of advances in surgery which had enabled the conditions of the pelvic organs to be studied in the living subject by immediate inspection and palpation instead of through the medium of the vaginal tissues; consequently it was often that a change of opinion on this subject had been most marked among those men who had had large experience in abdominal work. The diagnostic value of abdominal section under such circumstances was almost as great as that of post-mortem examination, and hence the opinion of the laparotomist was entitled to very great weight. As a result of this mode of observation, the conclusion could not be avoided that acute pelvic inflammation was, at least in the majority of cases, associated with septic, gonorrhœal, tubercular, or some other form of inflammation of the tubes. There were two forms of inflammation which were recognized as occurring within the pelvis as a result of tubal disease—pelvic cellulitis and pelvic peritonitis. In many cases both forms of inflammation were simultaneously present in the same subject, and it was not improbable that in all cases when either was present, the other also existed in a greater or less degree.

The treatment consisted in the withdrawal of the effusions from the cellular tissue by means of the aspirator, etc. Where pus tubes were present he would advocate their removal.

Dr. JOSEPH PRICE, of Philadelphia, said that his experience was a little different from that of the essayist. Relief from salines and the aspirator in the cases reported might have been justifiable, but tubes containing pus in every instance called for abdominal section. Dr. Price then exhibited some such tubes, one of which was seven inches in length, and called attention to their frequency in cases of pelvic inflammation.

Dr. GEORGE J. ENGELMANN, of St. Louis, Mo., said that there was a fascination in the results achieved by Dr. Price and other operators in these cases, but he thought the pendulum was swinging too far in that direction. He could indorse the surgical treatment advocated by Dr. Price in dealing with pelvic inflammation which resulted from salpingitis, or where there was pus in the tubes. Many of the cases which were formerly called pelvic cellulitis were the sequelæ of salpingitis or pus in the tubes, but he was satisfied that there were cases which existed without salpingitis.

Dr. W. G. EWING, of Nashville, said that when he began to practice medicine he was on the conservative side, but was now satisfied that many of the cases which came under his observation could have been dealt with surgically and successfully. He favored early operative interference, and said the surgeon should not delay in such cases, for, by so doing, additional adhesions were apt to form with extension of the inflammatory process.

Dr. HARDON said he feared he had been misunderstood, but would now say that tubes distended with pus admitted of but one rational treatment, and that was their removal. He invariably

recommended that this be done: but what should the surgeon do with those patients who would not permit an operation? As regarded pelvic cellulitis without disease of the tubes, he could corroborate the statements of Dr. Engelmann, and called attention to two cases which he had reported last year to the association which verified this fact. In these cases he had aspirated and withdrawn several drachms of serum from the cellular tissue. Subsequent examination had revealed absolutely no disease of the tubes. He had examined these patients from time to time, but not the slightest evidence of tubal disease could be found, and there had been no recurrence of the pelvic inflammation.

(To be concluded.)

NEW YORK ACADEMY OF MEDICINE.

Meeting of November 21, 1889.

The President, Dr. A. L. LOOMIS, in the Chair.

The Annual Address.—The PRESIDENT spoke briefly on the subject of the new Academy building. He said that his predecessor, Dr. Jacobi, had expressed a hope that the work would be carried to completion in the near future. These hopes were to-day almost realized. Thus far the building had been paid for, and the lots upon which it was being erected were also paid for. There was sufficient money in hand to carry on the work for some time as it was now progressing, but, in order to insure funds for its completion, it was necessary to effect a sale of the old building. This, it had been hoped, would bring in about \$70,000. If they could sell for this sum and each fellow of the Academy would contribute his share of the sum of \$20,000 more, then by the first of next October they would enter one of the finest buildings in the country free of debt. It devolved upon the members of the Academy to take a more earnest part in this matter. Some had worked well while others had done nothing. The subscription so far had amounted to \$50,000, which had been raised among one hundred and fifty of the fellows. There were six hundred fellows in all, and it seemed that there should really be no difficulty in raising the \$20,000.

The Relation of Medicine to the Problem of Socialism.

—Dr. W. M. POLK delivered an address thus entitled. The speaker had stated that he would consider the relation of the medical profession to some of the questions of the day. He would modify the statement and say "the question of the day." No less an authority than Professor Seelye had recently said: "There is one question of our time toward which all other questions, whether of nature, of man, or of God, steadily tend. No one will be likely to dispute the affirmation that the social question is, and is to be, the question of our time." The speaker thought that the profession would be encouraged to inquire into this question by reason of the widespread interest which socialism was evoking. One of the surest evidences of the truth of this assertion was to be found in the frequent and able discussions and dissertations upon it in the current literature of the day. Politicians were making of it a factor in government, and the Church, conscious of the moral aspects of the question, was fast awakening to the necessity of an active censorial position on its part. The social question might be defined as an inquiry into the status of the order of civilized people, and their relations one to the other in the economic arrangements of the social system. The recent growth of the inquiry was due to the conviction that these relations were becoming dangerously abnormal through the action of preventable causes. The causes were being gradually defined and remedies were being sought for by many of the best minds of the day. As was to be expected in such a question, there existed wide differences of opinion. But

upon one point all were agreed—namely, that discontent was widespread, and that this discontent was assuming the nature and proportion of a defined class question upon which the two great orders of present society were arraying themselves, the one in opposition to the other. The question assumed phases which differed somewhat in different countries according to the kind of government which prevailed. As enunciated by the class in whose interest it was first begun, this movement was called socialism. It was the belief of many, and history seemed to confirm it, that in socialism we but witnessed a continuance of that process by which man as a whole was being lifted upward. Examples of the process stood out in every epoch. To go back no further than nineteen hundred years, we found a movement beginning in an obscure village of Palestine which, extending itself among the lower classes, dominated the Roman Empire, and subdued every conqueror who successively overran the realm. The underlying principle was betterment of the lower orders, and in that far-reaching agitation it was not difficult to discover the greatest step in social evolution recorded in history. It was seen again in the Reformation, and its latest imprint stood before us in the tragedy of the French Revolution. Socialism, however, had scarcely been a formulated creed until about the beginning of this century. The stimulus derived from the French Revolution initiated it, and this, together with the growth of the democratic ideas of government, as witnessed in this country, might be said to have developed it. Realizing that little could be accomplished save through political power, its first aim had been toward securing the ballot. Its history so far had been largely made up of successful efforts to that end, so that to-day, in most civilized countries, political power, to a greater or less extent, was practically conceded to it. In this country there was to be seen the highest development of its political effort, and there could be no question that, conscious of its power, it was making ready to advance toward the end and aim of its existence. To-day it practically stood organized for self-protection; its next step would be one of aggression. "Socialism," then, was the expression of the lower orders to show their discontent with the conditions of their lives, and was at the formulation of any ideas and purposes as to the remedy. It drew the line with sufficient clearness between itself and its opponents, so that no one need be ignorant of its purposes. The question at issue was being gradually narrowed to that of property rights, the term property being made to cover everything out of which man met his daily wants, whether it was his money accumulations, his hands, or his brains. It was interesting to note that, while the successful working of republican government in our country had stimulated to a tremendous degree the growth of socialism in Europe, yet socialism had never until the present day been able to assume a definite shape in America. Our peculiar position had undoubtedly been responsible for this immunity. The first aim of socialism, political power, was conceded by us at the outset; and as for the question of "property rights," it could have no bearing. In fact, in this, a new country, all the conditions securing content so far outstripped those of an opposite tendency that anything like general dissatisfaction in any one class of the population was an impossibility. A most curious condition of affairs had been evolved, however, from what was apparently the most fortuitous combination of human circumstances. The fundamental principle of our system was declared to be the freedom and equality of man in the pursuit of any of the just purposes of life. Our domain being large and the population relatively sparse, immigration was successfully encouraged. Ignorance being recognized as a threat to the state, education had been amply provided for and carefully fostered. The pace at which we had moved had been indeed tremendous, but, while demon-

strating some of the advantages of freedom, it had also developed a well-recognized law of nature, the survival of the fittest. It began to show that to the strong literally belonged the victory. Already combinations for the purpose of destroying freedom in competition were assuming shape. It was only necessary to point to the restrictions upon imported contract labor and those upon apprenticeship sought for in one class, and the combination to check production and expenditure in the other. It would appear then that the doctrine of human equality was being worked out among us to a point which would demonstrate that it had inevitable restrictions. The suddenness with which this apparent failure of the practical application of the doctrine had come upon us was mainly due to the abnormally rapid increase in our population through immigration, for this increase had been mainly in the order which had the least in the shape of worldly possessions, and therefore felt most the pressure incident to its acquirement. Instead, therefore, of a limited discontent which could safely be put down to laziness and viciousness, we found ourselves confronted by a rapidly spreading dissatisfaction with the present state of our economic conditions which could be traced to the strain put upon man's resources by the free and active competition for what there was to be had of profit and prosperity in a rapidly increasing population. But this was not all. When educating a man we encouraged him to institute comparisons; he instituted them, and, when applied to himself, content was not always the result. Here in America there was a fear that education might not enable men to reconcile the incongruities which their observation told them existed between the facts of their daily life and the assertion upon the equality of man contained in that corner-stone of Government, the Declaration of Independence. Such men were apt to see in the doctrine of equality of man a panacea for economic inequalities which they saw about them. And if they were touched sorely a selfish interest would lend zest to the desire to apply it to their betterment. That this great question of socialism was primarily one of statecraft there was no doubt. But so were Christianity and Mohammedanism, and there were excellent proofs of the influence of medicine in propagating the one and in civilizing the other. John Watson, in his sketch of the history of medicine, delivered before the Academy some years before, had spoken of the attitude of medicine in the past ages—how, in the person of the Parabolani, it worked as an engine of Christian propagation, and how, in the person of its temples of learning, it stood upon the side of the pagan; how, in the contest that finally witnessed the triumph of Christianity, we were rent in twain, our culture deposed, and our ignorance installed as the directing influence in our affairs. For us then there were both warning and encouragement. The state must rest upon the intelligence of its people for the wise solutions of the questions which vexed it, and especially upon the intelligence of the leading orders of its society. Were not the members of the medical profession of this number, and did they not stand out more prominently than ever before as a recognized force in the social system of the day? And as they had borne no small share in the great questions of the past, it was well that they be not blind to their mission of to-day. The content of a people was dependent upon their physical well-being. The conditions necessary to insure this were at the command of the one order, so that they had but themselves to blame if it was not allowed. But how was it with that other which was forcing the social question to the front? Was there another element in any civilized land, which was better placed than in this, to properly answer this question? And this community—what was it? Was it not the exponent? Did we not find in it the very essence of that question of socialism which was beginning to press so hard upon us? In

its seething mass of humanity, with its pleasures on the one hand, its sufferings on the other, its aspirations here, its lost hopes there, we had the very epitome of the whole human race. And as we passed from home to home, from tenement to tenement, did we find the conditions of healthful life present, or even possible, with the majority of our population? It had been said that the medical profession was the buffer between the colliding forces of society. It seemed to the speaker that there was a woful ignorance, or perhaps woful blindness, on the part of the mass of the higher orders to the physical condition of the lower. How many people in New York really knew what the conditions of healthful life were? They had a general idea, but general ideas were not working formulæ. The speaker believed that the public, of both orders, should be taught that the essence of the discontent was in the absence of the conditions of healthful life. To get the public to heed, exclusiveness must be dropped. For plain people to understand, plain terms should be used to point out the practical application of facts, not theories. Facts were plentiful enough, as was well known. As practitioner, as minister to his ailments, man had always accepted the physician, but as teacher he had been less receptive. Man had always exacted of the profession more than could be given—namely, “eternal life.” And failing to get this, he easily became skeptical as to whether we could tell him anything about life at all. Having but a surface knowledge of nature, supernaturalism had become his mainstay, and remained his prop until within the days of present knowledge. And yet, while he had asked for the elixir of eternal life, he had failed to furnish the educational conditions essential to a knowledge of the laws which governed even the short life assigned him. This, perhaps, was natural, recognizing as he did that he was to be the material out of which medical men were to carve their science. If ever there was an age in which knowledge of the laws of life, of health, and of death were more universally sought than in this, history had failed to record it. Education and competitive life had brought the civilized world to our door, so that it might truthfully be said that we stood upon the threshold of the golden age of medicine. It was indeed our opportunity, and if we failed to grasp the occasion it would be the fault of just such representative bodies as the speaker had the honor to address. A broader view of their mission than was involved in the process of self-instruction had best be taken. Let them shake off the exclusiveness of their teachings, and take the public more into their confidence and speak directly to it of those laws of life and health which were each day becoming so necessary to it in its present emergency. Say those things which they would be glad to receive from physicians as recognized expounders. Drive home to him whose property right was represented by his brain, or by his muscle, that his body was his capital out of which his profit must come. Show him, in the economics of his life, how important it was that he should keep his body in the best working order. He had heard of chance, of luck; bring it home to him that the luck he lost was lost because of physical defects engendered by heredity or in the hygienic defects of his daily habits. And put it forcibly before him that in the failure of to-day he but saw the paralyzing influence of some infraction of the laws of health yesterday, and that in the conduct of his life to meet his daily wants in health, as in morals, he must accept this doctrine. Let the profession lay before the community the inevitable reaction of such a status of human existence, and in doing it let them do it wisely and do it well, so that it might be said at the end that they had met to the fullest the duty which, in the processes of social evolution, had been laid upon their shoulders, and that, in answer to the mandate of that first law of Nature, they had taught “self-preservation.”

SOCIETY OF THE ALUMNI OF BELLEVUE HOSPITAL.

Meeting of October 2, 1889.

The President, Dr. RICHARD KALISH, in the Chair.

The President's Address.—On assuming the chair, Dr. KALISH said: “Allow me to give you my sincere thanks for the honor you have done me in electing me to preside over this prosperous society. I am deeply sensible of this honor, and trust, by devotion to the interests and the work of the society, to demonstrate how great is my appreciation.

“A review of the work already accomplished by the society requires but a momentary consideration of the papers read and discussed during the past year to prove how varied and extensive a range of subjects was brought to your notice. A partial list will include ‘Demonstration of the Treatment of Lateral Spinal Curvature’; ‘Report of a Case of Perforation of the Vermiform Appendix, with Laparotomy’; ‘Yellow Fever and the Jacksonville Epidemic’; ‘Report of Four Cases of Classified Insanity’; ‘Presentation of a Case of Misplaced Heart from Fibroid Phthisis’; ‘Trephining, with Replacement of the Button of Bone’; ‘The Radical Cure of Hernia’; ‘Drainage of the Peritonæum in Acute and Subacute Peritonitis’; and the list might be greatly extended, but this is sufficient to show how wide a field was covered in eight meetings of the society.

“The signal success which has followed the scope planned by the organizers of this society renders me loath to make any suggestions leading to a change in the rules or guidance of the proceedings. Some years ago a determined effort was made to establish a society similar to this and upon plans which then seemed feasible, but the society failed to materialize, if my memory serves me, not even a single meeting being held. Under other plans this society was inaugurated, and in a little over two years from this inauguration its register held eighty-seven names. Another year has passed, and to-day its membership is one hundred and fifty-two, an increase of sixty-five, the roster including members of the profession eminent at home and abroad, whose opinions bear weight and whose knowledge and proficiency have added honor, dignity, and a new luster to the medical profession. As an example of the widespread interest the proceedings of this society is awakening in the profession, it is only necessary to instance the large attendance of rapt listeners at the delivery of the annual oration by Professor William Osler, when the seating capacity of the Academy of Medicine was more than overtaxed by the great number of physicians who not only crowded the large lecture hall, but uncomfortably filled the parlors as well.

“The Committee on Science is endeavoring to secure contributed papers of a greatly varied character, so that subjects relating to all the departments of medicine and surgery may in turn be brought before you. Circulars giving full particulars and asking for contributions, also blanks to be filled in with the titles of proposed papers, have been sent to all the members, and an early response will greatly facilitate the completion of the arrangements for future meetings. As soon as this schedule is completed a printed copy, containing a list of the papers to be read as well as the dates on which they will come before you, will be sent to each member, in order that those interested in a special subject may have timely notice and be prepared for a full discussion.

“There are certain matters to which your notice is particularly directed, and first the necessity of a full and regular attendance at all the meetings. No one wishes to read a carefully prepared paper before an array of empty seats, with few or none present to discuss the views and opinions set forth. With the assurance, however, of a large and critical audience,

the author is spurred on to taking greater care in preparing his paper and to making a greater effort in elaborating his ideas and deductions, and, with the knowledge that these ideas and views will be fully discussed, the paper acquires a depth and breadth it would not otherwise have attained. The meetings heretofore have been well attended, but I would request a larger attendance, even if only for a part of the session.

"Another matter is the completion of the 'Catalogue of Bellevue Hospital,' which to the society is more than a necessity. It will put in an enduring form much valuable data now scattered through various channels and likely to be lost. It is proper that the compilation should be done under the auspices of this society, which is eminently fitted to undertake the work, as it is particularly interested in all that pertains to Bellevue Hospital. The Committee on Catalogue, appointed over a year ago, has made considerable progress, but much still remains to be done. In the compilation of this work the following table of contents was decided upon: An Alphabetical List, a Geographical List, a List of each Staff since 1817, a List of the Visiting Staff, a History of the Hospital, and a History of the Epidemics which have prevailed in the Hospital. The alphabetical and geographical lists, as well as the list of each staff, are nearly completed, but upon the other divisions very little has been done. A catalogue of this nature is usually issued decennially, and the spring of 1890 would seem to be an appropriate time for publication.

"Another matter which should enlist your earnest attention is the proposed publication of the 'Reports of Bellevue Hospital.' An immense amount of clinical material, involving all the practical work done in Bellevue Hospital almost from its inception, is contained in the history-books of that institution. Very little of this has been published, and little benefit indeed has the profession been able to obtain from the valuable experience gained in the hospital, and recorded as it occurred. I have been able to find but three reports of Bellevue Hospital, and these are for the years 1848, 1856, and 1870.

"The report for 1848 is made by the house physician to the Medical Board, and consists of statistical tables of admissions, discharges, and deaths, also the diseases under each of these headings, a table of the diseases of those remaining in the hospital, an obstetrical table for 1848, and a table of the number of admissions, discharges, and deaths for the period extending from 1827 to 1847. For 1856 the report is not unlike that of 1848, but is issued by the Medical Board. It gives these tabular reports, refers to the improvements made in the buildings and grounds, and gives a complete history of Bellevue Hospital from its inception, compiled by Dr. B. W. McCready. For 1870 the report includes Charity Hospital, and gives a description of unusual cases and the statistics derived from new methods of treatment as observed in these two hospitals. Among the contributors are Dr. I. E. Taylor, Dr. A. Flint, Sr., Dr. L. A. Sayre, Dr. F. H. Hamilton, Dr. W. A. Hammond, Dr. F. Delafield, Dr. E. G. Janeway, Dr. T. G. Thomas, and others.

"Many of the European hospitals, notably those of Great Britain, publish annual reports, giving full histories of peculiar cases and a comparison of various methods of treatment as well as a full description of new apparatus and forms of application. There has been considerable discussion of this subject among the members in an informal manner, and it has been suggested that the society, with the advice and co-operation of the Medical Board of Bellevue Hospital, should assume the compilation of these reports.

"If we should decide to undertake this important work it is well to understand before entering upon it that it is a labor involving a great amount of research and entailing quite a large expense. The editing of so extensive a series of books is an

item which must be taken into consideration and thorough and complete arrangements made therefor. I have no plan of operative procedure to suggest, and present this matter that a full and free discussion may take place."

A Case of Multiple Joint Lesions was presented by Dr. R. J. CARLISLE. The patient, an Italian boy seven years old, belonged to a family whose history did not point definitely to either tuberculosis or syphilis, and the patient himself had passed easily and promptly through the first dentition, and had been apparently in good health up to two years ago. At this time, without any known traumatism, his present disease had begun. When first seen by the speaker, about one month ago, the first and second phalanges of the fifth finger of the right hand had become diseased, and, the boy being far too timid to admit of a thorough examination, a provisional diagnosis of syphilitic dactylitis was made. At the next examination the whole of the right metatarsus and a part of the left had become acutely involved. The axillary temperature was 99.2° F., and the lungs were not diseased.

When first seen he had been ordered fifteen grains of potassium iodide daily, and at the end of two weeks, as no symptoms of iodism had appeared, the daily quantity was increased to thirty grains; and this quantity had been taken for the last twelve days. To-day for the first time there was some coryza. The smaller joints had become worse during this treatment.

Dr. L. W. HUBBARD said that it was not very common to see so many of the smaller joints involved, and the diagnosis lay between syphilis and tuberculosis. The appearance presented by the fingers strongly suggested syphilis, while the sinuses about the foot were very similar to those usually seen in tubercular joint disease. From the history of the case, in the absence of more definite information, he would consider it a case of tubercular joint disease. As regarded treatment, he would advise disinfection and cleanliness, rest of the diseased parts, and attempts to improve the general nutrition by securing him good food and air, and by the administration of cod-liver oil and the hypophosphites.

Dr. R. H. SAYRE considered the case tubercular, and was strongly in favor of efforts directed toward improving the general nutrition; but, in addition to this, he would advise local treatment with iodoform, preferably by means of injections of an ethereal solution of iodoform.

Dr. FRANK HARLEY concurred with the previous speakers in the diagnosis of tubercular joint disease, and would also advise against too active local treatment, as, in a similar case which he had observed, each time the diseased parts were subjected to scraping they became reinfected, and the patient grew steadily worse.

Actinomycosis of the Pleura in the Human Being.—Dr. T. M. BYRON reported the history of a case of this disease. (To be published.)

Dr. PARKER SYMS asked what the usual duration of this disease in the lungs was.

Dr. BYRON replied that this was only the second time that he had seen a case of peripleuritis; but those who had had a more extended experience with the disease stated that it was of long duration; and in a case of prevertebral abscess due to actinomycosis the patient was treated for several years for Pott's disease.

Dr. E. LE FEVRE wished to know whether the disease was apt to extend to the lungs, and how the actinomycetes gained entrance to the lungs.

Dr. BYRON said that their mode of entrance was probably the same as for the tubercle bacilli; but just what this was had not yet been determined. At the present time an investigation on this subject was being carried on at the Loomis Laboratory,

and it had been found there that on inoculating rabbits with emulsions made from the glands of men who were known to be free from pulmonary tuberculosis, about eighty-five per cent. of these animals became tuberculous, showing that the tubercle bacilli gained entrance into the lymphatics; and it was probable that the same took place with the actinomycetes. The subject had not been thoroughly studied, and it was on this account—the importance of the subject, and the fact that the disease, although not new, was almost unknown—that he had been led to read this paper. He believed that only about twenty-eight cases of actinomycosis had been reported.

Dr. HARTLEY spoke briefly of three cases which he had seen in the Roosevelt Dispensary. The first was in a girl of thirteen years, who had presented herself with an enlargement of the lower jaw which resembled a tuberculous process both in its size and in the scrapings from it; but the appearance of the pus led to a correct diagnosis. The second case was that of a man about twenty-two years old who had had an ulcer on the inside of the cheek for some time, when suddenly it had begun to enlarge rapidly, and he presented himself with a rather diffuse inflammation of the skin, which was quite soft in the center. The discharge from it was examined by Dr. Prudden and found to contain the actinomycetes. In the third case a little girl also had an ulcer on the inside of the mouth, from which the same peculiar material was discharged. Nothing was known concerning the sources of infection in these three cases; two came from different parts of the city, and the other came from the country. He had seen a fourth case, which had been presented by Dr. Lange at a medical society meeting. It was a case of actinomycosis of the liver, which at first had been mistaken for an abscess of the liver.

Dr. BYRON said that the report of these additional cases only served to emphasize his statement that the disease was not so rare as is commonly supposed. A positive diagnosis of the disease could not be made without the microscope; and, in the search for tubercle bacilli by the now classical Ehrlich-Koch method of staining, the actinomycetes were not stained, and were therefore invisible; hence the necessity of physicians giving more attention to the study of this dark part of pathology.

A Case of Cerebro-spinal Meningitis, with a Remarkable Diminution in the Number of Respirations.—Dr. J. F. ERDMAN read the report of a case. (To be published.)

Dr. LE FEVRE spoke of a case where rigidity of the muscles of the neck and back, together with Cheyne-Stokes respiration, had continued for eight days. He had made a diagnosis of meningitis, but, after having watched the case for five days, he had called in Dr. Loomis, who thought it questionable about its being a case of meningitis. The patient was given large doses of quinine and recovered. Another member of the family was soon after taken down in the same way, and then it was found that the main sewer pipe was open, and the case, instead of being meningitis, was an aggravated form of sewer-gas poisoning. The temperature had remained at 107° F. for seven days. He would like to know whether, in Dr. Erdman's case, chills had preceded the attack.

Dr. ERDMAN said that there had been none, and the highest temperature recorded had been 99° F. on the day of the eruption.

A Case of Pyonephrosis.—Dr. PARKER SYMS read the report and presented a specimen.

The patient was a man under fifty years of age, although possibly appearing to be ten years older. He had been intemperate in his youth, but for some years past had not drunk to excess, and had been in good health. During the two years prior to his coming under the speaker's observation he had had increasing trouble with urination, and he gave a pretty distinct history of

the passage of gravel. When first seen by the speaker, micturition was frequent, and the urine was loaded with pus. He had consulted several physicians, but, so far as could be ascertained, no diagnosis of renal trouble had been made. On examination, a non-fluctuating tumor was found in the region of the left kidney, and this, together with the very large quantities of pus voided, without bladder symptoms, seemed to point pretty clearly to a suppurating kidney. Three days later—May 31, 1889—the operation was performed. At this time he had a septic temperature of 102° F., but his pulse was 100 and fairly strong, and his general condition seemed pretty good. An incision was made along the lower border of the twelfth rib to the anterior superior spine of the ilium and curved forward. This was subsequently enlarged in a forward direction. The kidney was found very firmly adherent, and, during its liberation from its attachments, there was a rapid venous hæmorrhage which was controlled by double clamps on the pedicle, so that the patient did not lose more than about three ounces of blood. The kidney was rapidly removed, but no bleeding point was found, and it was probable that it came from a rent in some vein, which was kept open by the presence of the tumor. The operation lasted an hour, including the time taken in examining the patient under ether. The man died unexpectedly from shock about twelve hours after the operation, and his death was probably due to the hæmorrhage, which, although not large, was a good deal for a man in his condition.

It might be interesting to discuss the advantages and disadvantages of the operation in the loin as compared with abdominal section. It had seemed to the speaker that in the majority of cases it would be difficult, if not impossible, to remove such a kidney by abdominal section without rupturing it; and the pouring of pus into the peritoneal cavity was certainly a serious matter. By the curved posterior incision one got nearly as much room as by the anterior incision, and it would seem that the advantages of the extra-peritoneal operation were very great.

In answer to a question from Dr. R. H. SAYRE as to the time when shock had supervened, the speaker said that the patient went into shock about half an hour after the stopping of the ether, and that he remained in that condition until he died. There was no hæmorrhage in the wound, and no opening into the peritoneal cavity. As no autopsy was permitted, he could not say whether the other kidney was diseased, or even whether there was another kidney.

Dr. R. H. SAYRE had asked the question because he had in mind a case in which, after an operation on a patient known to have kidney disease, the patient had gone into a dangerous collapse and remained in that condition for several hours, and had been with great difficulty resuscitated. The collapse had seemed to be due to suppression of urine.

Dr. HARTLEY thought that the curved posterior incision gave all the room that was needed, and as much as was obtained by the anterior incision.

Dr. CARLISLE remarked that he had been under the impression that the danger in giving ether to patients with kidney disease was not from shock, but from suppression of urine.

Meeting of November 6, 1889.

The President, Dr. RICHARD KALISH, in the Chair.

Syndactylism.—Dr. J. MCG. WOODBURY presented a case which involved both feet and hands; there was also a talipes equino-varus of the right foot. One thumb had been freed considerably, and there was a prospect of ultimately getting a good result also with the other hand. The talipes had been treated by a method which had worked admirably in upward

of nineteen cases. It consisted in applying Sayre's sandal, and by means of it bringing the foot in good position, and then righting it by confining the whole apparatus in plaster of Paris.

Multiple Joint Lesions.—Dr. FRANK HARTLEY presented a case, which was the one he had alluded to when discussing this subject at the last meeting. The boy was admitted to the Roosevelt Hospital three years ago with an injury to the external condyle of the right humerus. A tuberculous abscess had formed and communicated directly with the elbow joint, which had been accordingly excised by Dr. Sands. Following this operation there had been a succession of recurrences—first, nearer the shoulder and in the external angular process of the frontal bone on the affected side, and subsequently on the opposite side. Subsequently skin gummata had appeared over the shaft of the ulna, then over its olecranon process, and, later still, over both tibiae. So far five or six operations had been performed on this patient, but each operation had been followed by a recurrence of the growth, so that it had become necessary to abandon operative procedures and trust mainly to measures directed toward improving his general nutrition. There had never been any “bone cries,” because the process had been mostly superficial and the bone had not been involved. Moreover, before the primary operation there had been no other foci except the one at the elbow. The speaker had watched the case for three years, and he felt pretty sure of the diagnosis. The case which had been presented at the previous meeting would, in all probability, pursue a similar course.

Ankylosis of the Lower Jaw.—Dr. L. W. HUBBARD presented a case with the following history: Walter S., aged three years and ten months, in January, 1888, had had an attack of what was called malarial fever, which had lasted about three weeks; and, after an interval of about one week, during which the boy had been apparently well, there had been a return of the fever, and this time it had been accompanied by profound drowsiness. In the following February abscesses formed on the leg, arm, and over the left ramus of the jaw. This latter abscess was incised and drained on March 12, 1888, but continued to discharge until the following June. During this time the jaw had been bandaged to retain the dressing, and apparently no attempt had been made to move the jaw. In June it was noticed that there was very little motion in the jaw, and in September an attempt was made to force open the jaw by means of instruments, but this had resulted in temporarily loosening the lower incisor teeth, so this procedure had been abandoned. Subsequently another attempt was made under chloroform, but the child behaved so badly under the anæsthetic that nothing was accomplished. There had been no further treatment until the case came to the speaker in the middle of last July. Although the patient had been kept necessarily on fluid diet, he was well nourished at this time. The jaws could be separated scarcely an eighth of an inch, and there seemed to be no muscular control of the lower jaw. The parents objected very decidedly to the use of an anæsthetic, so a method of gradual stretching was adopted and carried out by means of an instrument which the speaker had devised. This instrument consisted of two steel plates, fastened together at one end by a separable hinge, and capable of being separated at the other end by turning a screw. It differed from the usual wedge-shaped instrument in having a separable hinge, and in being made considerably thinner at this end, which in this case was absolutely necessary in order to permit the introduction of the instrument into the mouth. The original intention in having the hinge separable was to facilitate the cleaning of the instrument; but it was subsequently found that there was an additional advantage—*i. e.*, having partly separated the jaws of the instrument, a cork could be inserted between the plates near the hinge and the action of the screw reversed, by which the

instrument was made to exert considerable pressure on the molar teeth.

Owing to long disuse, the muscles of the jaw were very weak, particularly the depressors, so that electricity was employed as an adjuvant, and with benefit. At the present time the instrument could be inserted as far back as the molar teeth; but it was observable that when the child was excited he had less control over the muscles of the jaw, which did not open as much as at other times.

(The instrument was exhibited, and its use demonstrated.)

Dr. J. W. S. GOULEY said that he had treated about half a dozen such cases, all in children. The closure of the jaw had been due sometimes to an osteitis from decayed teeth, and sometimes to cicatrices following stomatitis; but in all the cases there was a permanent and unilateral contracture of the masseteric muscles. He had employed various instruments, beginning with one devised by Dr. Valentine Mott. This instrument effected the desired object, but in several instances broke the teeth. In some cases he had separated the jaws quite rapidly under an anæsthetic, while in others the gradual method had been adopted. In the latter method, after opening the jaw a little, a small wedge of cherry wood (which was found to be better than cork) was inserted and kept in the mouth; and this treatment was continued, not merely for weeks or months, but for years. In one case, that of a girl of twelve years, these wedges had been worn daily for ten years, but at the end of this long period she could only separate her teeth half an inch. At this time she demanded an operation, and he excised a portion of the maxillary bone according to the method of Esmarch, with the result of enabling her to open her mouth and chew her food; but the operation had caused an ugly deformity. The other cases had not been followed for so long a time; but in none of them had the original method employed been successful, as there was a recontraction. Dr. Valentine Mott had told the speaker that he had tried both this method and the slow one, and had even divided the masseteric muscle on the affected side, but had never been completely successful. The case presented to-night was worthy of careful treatment, as the child was young, and the chance of ultimate success was better, for the contracture was not so marked as it had been in the cases which he had narrated. He approved of the instrument, as, on account of its broad bearing, it was less likely to injure the teeth.

Dr. HUBBARD said that he had based his hopes of success in the case on the yielding nature of the contracture, as at no time, so far, had it been necessary to employ a force sufficient to cause much pain or make the teeth sore.

The Radical Cure of Varicose Veins by Multiple Ligation.—Dr. CHARLES PHELPS read a paper thus entitled. (To be published.)

Dr. J. D. BRYANT said that it had been his good fortune to witness some of these operations, and also the results. One of the dangers incident to the existence of varicose veins had not been touched upon in the paper, but had been illustrated in a case in his own practice. The case had been one of phlebitis associated with a well-marked varicose condition along the inner side of the knee joint, and the patient had died from pyæmia.

That varicose veins were amenable to treatment had been known since the time of Celsus, and from very early times the application of ligatures to varicose veins had been more or less generally recommended. The principal operative methods were: 1. Direct ligation of the veins, with the removal of a portion. 2. The application of ligatures at isolated points, or multiple ligation. 3. The use of caustics. Those familiar with the teachings of Dr. Gross knew that he preferred the use of caustics to multiple ligation; but the speaker's own preference

was for multiple ligation, or for ligation and excision. This question had recently been thoroughly discussed abroad by the German surgeons, who were about equally divided in favor of these two operations. Which method offered the best chances for the patient? There were three objections to passing any form of needle subcutaneously around a vein: 1. The danger of including a nerve, thereby modifying function or sensation. 2. The danger of wounding the vein, which would be very serious if the needle were not thoroughly aseptic. 3. A likelihood of including in the ligature the tissues surrounding the vein, which, although perhaps not dangerous, was certainly not requisite.

If the vein was exposed by an incision, the ligature could be passed around it without exposing the patient to any of these dangers, and with the additional advantage that collateral branches could be avoided. Although his experience with multiple ligation had not been so extensive as that of Dr. Phelps, he had done it many times, and had never observed suppuration; and, in a somewhat more limited experience with removal of portions of veins, suppuration had occurred in only one case. In simple cases he thought multiple ligation the better method, but where there were many and large veins to deal with, a free incision, with the removal of two inches or more of the vein, was the safer procedure.

As regarded the results of operation, there was no question that the veins were occluded and ulcers healed; but one could hardly say that there had been any permanent cure. The length of time which varicose veins took to develop was greater than the time the cases reported to-night had been under observation; and, besides this, the same causative conditions existed in the patients after as before operation. There was also no doubt that the *venæ comites* might themselves become varicose, for in many instances, while ligating the posterior tibial behind the internal malleolus, very tortuous varicosities had been found, both with and without more superficial varices. The subcutaneous and the open methods of ligating veins were the best operations we had at present for the treatment of these infirmities.

Dr. GOULEY said that he would have very little hesitation in choosing between these two operations; for, both theoretically and practically, the subcutaneous method was the safer one, as there was always greater risk of complications from an open wound than from small punctures as made by Dr. Phelps. The reader of the paper had given the indications for ligation of varices, and had by implication furnished also some general indications; but there were special indications which should be mentioned. As an illustration he cited the case of a medical man who had come under his observation some twenty years ago suffering with large varices of the leg and thigh where the saphenous vein had been about half an inch in diameter. At its point of communication with the femoral vein there had been an ampulla two inches and a half in diameter, which had extended like a huge aneurysmal sac up the thigh to Poupart's ligament, beyond which it could not be traced. In such cases no method of operation would have been safe. The previous speaker had spoken of the operation of excision; but there had been another craze in this country—*i. e.*, the injection of varices with perchloride or persulphate of iron. He had once been tempted into doing this, and had come very near regretting it, although the patient had lived in spite of the damage done. The method consisted in injecting into the vein a few drops of the perchloride of iron with a Pravaz syringe, while pressure was made above. There was no certainty that a serious thrombosis would not result. The operation had been done frequently by one of his hospital colleagues, but the results had been very unsatisfactory.

In connection with the subject of contra-indications, he related the history of the case of one of his patients who had had a thrombosis of the iliac vein following some operation. This had resulted in a swelling of the leg like a classical "milk leg" in a puerperal patient, and subsequently in the formation of a large abscess in the upper part of the thigh. Eight or nine months after his recovery from this the speaker had noticed superficial varices of the leg and thigh, and in the course of a year there had been a great bunch of varicose veins in the hypogastric region. The greater part of the blood from the leg had been found to traverse the hypogastric region to open by one of the large venous trunks into the right femoral; and, when this was compressed, the enlarged hypogastric veins had become much swollen, some of them being three quarters of an inch in diameter. A surgeon had proposed an operation for the purpose of closing these veins; but, had this been done, the consequences could be easily imagined. (Photographs of this patient were shown.) The man lived twelve years, and at the autopsy the left iliac vein had been found to be completely closed. The question of cure of varicose veins was by no means settled, and a period of four or five years would scarcely be a sufficient test of the permanency of the cure.

Dr. J. R. CONWAY said that his experience with the method of multiple ligation was limited to three cases, but the results so far went to corroborate the statements made by Dr. Phelps in his paper. In one case, that of a woman, the veins had been much dilated from the lower third of the thigh nearly to the ankle. Near the knee the veins had formed a large thin-walled tumor, and in the lower third of the leg had been an extremely deep ulcer of five years' standing, which had resisted all attempts to cure it. Nine ligatures had been applied to the veins at intervals of an inch and a half to two inches, and she recovered very rapidly. The two other cases had not been so severe. In one of them nine ligatures had been applied to a varicosity which had had a diameter about equal to that of the thumb. The result had been complete obliteration of the veins. In the third case only three ligatures had been employed, and the veins, although much diminished, had not been entirely occluded, owing to the re-establishment of the circulation through anastomosing branches. An interval of two inches between the ligatures seemed to be about the proper distance to secure obliteration of the vein. In none of these cases had there been inflammation, suppuration, or pain; and the patients had recovered rapidly. The operation was a simple procedure, and there did not seem to be much danger of including in the ligatures nerves or other important structures.

Dr. HARTLEY had never seen any particular trouble from infection of the wound, whether the case was treated by subcutaneous ligation or whether the vein was excised. In some cases, especially where there were ulcers, it would seem to be very difficult to prevent infection; but, even in these cases, if the ulcer were disinfected and kept dry, there would be no interference with the process of healing. He had been accustomed, where the veins were large, to tie the vein above and below and excise, and also to tie the neighboring branches. Where varicosities were very extensive, a continuation of this process, would make the operation unnecessarily lengthy, so he had been in the habit of employing, under such circumstances, the multiple ligatures.

Dr. PHELPS said that he did not maintain that the cure at the present time was radical, and he considered the method by excision about as good, except that it was very tedious. He wished especially to insist upon the necessity of the multiple occlusion of the vein, either by ligature or otherwise, in order to secure obliteration of the vein.

Book Notices.

Lectures on Bright's Disease. By ROBERT SAUNDBY, M. D. Edin., Fellow of the Royal College of Physicians, London, etc. With Fifty Illustrations. New York: E. B. Treat, 1889. Pp. vi-290. [Price, \$2.75.]

THE author gives one of the best summaries which have come under our notice of the various views held in regard to the vexed questions of albuminuria, dropsy, and the urinary and vascular changes found in renal disease. He writes also a most excellent chapter upon the clinical examination of the urine, both microscopical and chemical. We can hardly, however, accept all his statements regarding the clinical significance of tube-casts. When we come to his classification of Bright's disease we can not help feeling that he should either have kept to one of the older ones or given some comprehensible reason for adopting the one he has selected. He speaks of "febrile nephritis," "toxæmic nephritis," and "obstructive nephritis." Now, we suffer enough from bad classifications, and we should not have one thrust upon us which is incomprehensible in its very meaning. Who would imagine that "obstructive nephritis" meant what is often called "surgical kidney" or "suppurative nephritis"? Except for this classification, the book is very good, and the remarks upon treatment especially deserve praise.

Electricity and the Methods of its Employment in removing Superfluous Hair and other Facial Blemishes. By PLYM. S. HAYES, A. M., M. D., etc. Chicago: W. T. Keener, 1889. Pp. vi-128.

THIS treatise contains the usual statements upon the subject, and is a contribution to book-making rather than to medical literature. The busy practitioner has no time for it, and it seems powerless to enlighten the laity except to the most limited extent.

BOOKS AND PAMPHLETS RECEIVED.

A Text-book of Practical Medicine, designed for the Use of Students and Practitioners of Medicine. By Alfred L. Loomis, M. D., LL. D., Professor of Pathology and Practical Medicine in the Medical Department of the University of the City of New York, etc. Eighth Edition, revised and enlarged. With Two Hundred and Fifteen Illustrations. New York: William Wood and Company, 1889. Pp. xvii-1147.

Chemistry: General, Medical, and Pharmaceutical, including the Chemistry of the U. S. Pharmacopœia. A Manual on the General Principles of the Science, and their Applications in Medicine and Pharmacy. By John Attfield, F. R. S., M. A., and Ph. D., of the University of Tübingen, etc. Twelfth Edition. Philadelphia: Lea Brothers and Co., 1889. Pp. xvi-13 to 770. [Price, \$2.75.]

Notes on a Case of *Maeulæ Cæruleæ*. By Fred J. Levisour, M. D. [Reprinted from the "Journal of Cutaneous and Genito-urinary Diseases."]

The Cure of Hernia by the Use of the Buried Antiseptic Animal Suture. By Henry O. Marey, M. D., LL. D. [Reprinted from the "Journal of the American Medical Association."]

Chronic Inversion of the Uterus. By Henry O. Marey, M. D., LL. D. [Reprinted from the "Journal of the American Medical Association."]

The Bible Doctrine of Immortality. Shown by Numerous Texts. Compiled and edited by Joseph Wheeler, of St. Louis, Mich.

Medical Communications of the Massachusetts Medical Society. Vol. XIV, No. 111. 1889.

Jahresbericht über die Fortschritte auf dem Gebiete der Geburtshilfe und Gynäkologie. Herausgegeben von Prof. Dr. Richard Frommel in Erlangen. II. Jahrgang, Bericht über das Jahr 1888. Wiesbaden: J. F. Bergmann, 1889. Pp. viii-651.

A Guide to the Diseases of Children. By James Frederic Goodhart, M. D., F. R. C. P., Physician to Guy's Hospital and Lecturer on

Pathology in its Medical School, etc. Rearranged, revised, and edited by Louis Starr, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Second American from the Third English Edition, with Numerous Formulæ and Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 13 to 772.

Through the Ivory Gate: Studies in Psychology and History. By William W. Ireland, M. D. Edin. New York: G. P. Putnam's Sons, 1889. Pp. vii to 311. [Price, \$3.]

A Compend of Human Physiology. Especially adapted for the Use of Medical Students. By Albert P. Brubaker, A. M., M. D., Demonstrator of Physiology in the Jefferson Medical College, etc. Fifth Edition, revised and enlarged. With New Illustrations and a Table of Physiological Constants. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. viii-9 to 188. [Quiz Compend.]

A Hand-book of Dermatology. For the Use of Students. By A. H. Ohmann-Dumesnil, A. M., M. D., Professor of Dermatology, St. Louis College of Physicians and Surgeons. Illustrated. "St. Louis Medical and Surgical Journal" Publishing Company. Pp. viii-167.

The Cure of Crooked and Otherwise Deformed Noses. By John B. Roberts, A. M., M. D., Professor of Anatomy and Surgery in the Philadelphia Polyclinic. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 7 to 24.

The Physician's Visiting List (Lindsay & Blakiston's) for 1890. Philadelphia: P. Blakiston, Son, & Co.

Injuries to the Skull, with Some Observations on One Hundred and Eighteen Cases. By Thomas H. Manley, M. D. [Reprinted from the "Brooklyn Medical Journal."]

New Inventions, etc.

A GRAVITY DOUCHE.

By S. E. COOK, M. D.,
HOLDREGE, NEB.

My object has been to produce a physician's gravity douche that would supply an even flow throughout, so long as the relations between nozzle, reservoir, and cut-off were not disturbed, that would give a regularly intermittent flow when desirable, and of any desired strength of each pulsation, in which the temperature of the fluid in the reservoir could be gradually raised, and as it passes from the reservoir strained of sediment, and that would not inject air.

From experience I know that my instrument possesses these qualities, and I think is not unduly complicated. Figs. 1, 2, and 3 show the different steps I have followed in perfecting my design, Fig. 3 being the perfect apparatus.

The design, Fig. 1, is a simple closed can, A, with an outlet nipple, E, for attachment of the rubber tube, a screw cap, G, with washer, covering the opening for filling, and a straight tube, C, open at both ends (externally above and internally below near the bottom of can), to supply air to the interior of the reservoir and produce an even flow. This reservoir will produce an unvarying current until the fluid falls below the level of the lower end of the tube, C, when the reservoir is practically empty.

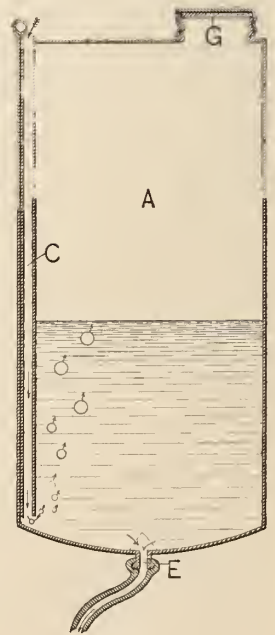


FIG. 1.

The drawing, Fig. 2, shows an open reservoir, A, provided with a small outlet nipple, E, beneath which is a smaller closed reservoir, B, supplied with an air-tube, D, long enough to reach above the level of the fluid in A. Within this smaller reservoir is a cylindrical float, K, slightly smaller in every direction than B, so as to be quite free to move in a vertical direction a quarter of an inch. This float is centrally perforated by a light rod provided at its lower extremity by a conical valve. This valve rests upon a valve-seat in the center of the bottom of B, which is continued into an outlet nipple, F, for the attachment of the rubber hose.

The reservoir, A, being filled, if the discharge nipple, F, carries the fluid from B faster than it can enter through E, a series of regular pulsations occurs, continuing so long as the fluid lasts in A. The *modus operandi* is as follows: The air being expelled, the valve and float resting on the valve-seat are kept in that position by their own weight, pushing downward, and the weight of the column of fluid in the rubber hose pulling downward. Against these two forces is the buoyancy of the float, which increases as the fluid in B rises. This upward force finally becomes the greater and the float with valve suddenly rises. The opening of the valve transfers the weight of the fluid in the discharge pipe from the valve to the fluid in B, which is pulled downward with a rush. When the fluid in B is low enough the float lowers and the valve suddenly closes. This action repeats itself so long as the supply of fluid lasts. There being always a bed of fluid in B, the injection of air is impossible. The action represents very accurately that of the hand compression syringe.

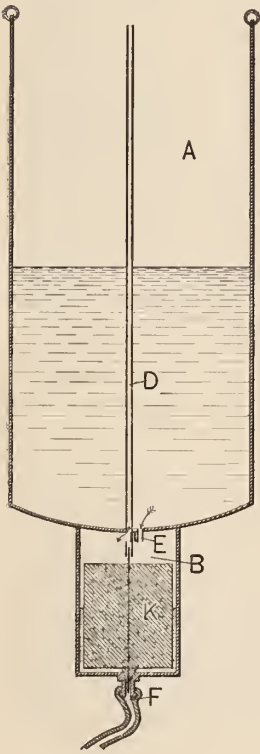


FIG. 2.

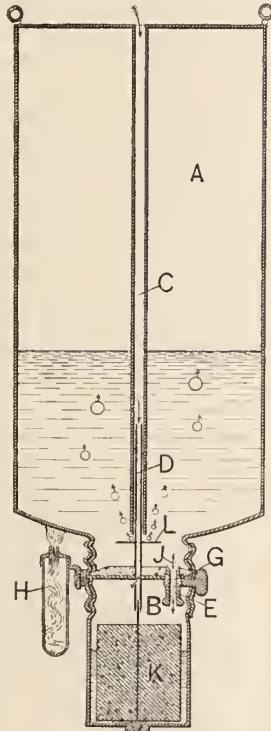


FIG. 3.

In order to combine these two ideas in one instrument, I have devised that shown in Fig. 3—the reservoir in Fig. 1, A, with the air-tube, C, centrally located, and the opening for filling changed to the bottom. The screw cap or stopper, G, is provided with a screw flange on each side, serving to connect the large reservoir with the small one. The nipple, E, is provided with a stop-cock to regulate the supply of fluid from A to B. The stopper, G, is also perforated centrally for, and provided with, an air-tube, D, the upper end of which enters C, extending some distance above the level of fluid in C. This tube, D, supplies B with air, maintaining a proper equilibrium. I further provide G with a small loop to hold the hook or arm of a small alcohol lamp, H, when necessary, to increase the temperature of the fluid in A. In order

to further guard against the escape of air bubbles through the nipple, E, a circular disc, L, somewhat larger in diameter than C, and perforated for D, guards the lower extremity of C. A strainer, J, also overlaps the outlet vent.

To fill the reservoir, unscrew and remove G and invert the reservoir. If a continuous current is desired, unscrew and remove the small reservoir, B, with float, and attach the hose to E. If an intermittent current is desired, attach the hose to F, leaving B in place.

Revert the reservoir and hang it high enough to get the desired strength. In using the intermittent current, the stop-cock, E, determines the number and length of the pulsations in a given time, while the height of B above the nozzle determines the force of each beat. By using the stop-cock, from one or two to twenty beats in a minute may be secured with a force determined by a head of from one to five feet.

If the temperature of the fluid is desired to be gradually elevated light and place in position the small alcohol lamp. The sensations of the patient will decide the limit of heat, when the lamp can be removed.

Of course, ordinarily the continuous current will be desirable, as in intra-uterine medication, where a very gentle even flow is desired, while for vaginal use alone, as in Emmet's method, many cases would be benefited by a pulsating current.

I have corresponded extensively with our leading gynecologists, and, with but few exceptions, they approve of my idea. Some favor the continuous current for all purposes, while others have informed me that to gain the full therapeutic effect of hot water they prefer the interrupted current of the "hand-bulb" syringe, and have on that account partially or wholly discarded the use of the "fountain" syringe.

My syringe corrects these defects and, though doubtless still capable of improvement, is reliable and convenient. The reservoir I intend shall hold at least a gallon, which I believe to be the most useful size. It can be made quite cheaply, being entirely of tin, and needs no engineer to run it.

Miscellany.

Buffalo Lithia Water in the Treatment of Stone in the Bladder, etc.—In the "Virginia Medical Monthly" Dr. John Herbert Claiborne, of Petersburg, Va., writes as follows: "I have for many years been prescribing the use of the Buffalo lithia water in cases of lithiasis, uremia, Bright's disease, cystitis, and allied affections, and with the same marked results which have followed its exhibition in like conditions by a number of other physicians. The most striking instance, however, in which I have seen the solvent properties of the waters manifested has been in the case of Mr. M., of this city. Mr. M. had been subject to attacks of lithiasis for several years, but in August last, after one of the most violent attacks of nephritic colic, passed gravel from the kidney into the bladder, where it remained for a week or more, setting up a severe inflammation of that viscus, with all its painful and distressing symptoms. Finally, however, the gravel re-commenced its journey, and became lodged in the prostatic portion of the urethra, cutting off the flow of urine and causing retention. Being compelled to use a catheter for the relief of this symptom, I pushed the calculus back into the bladder, as there was too much inflammation to resort to either the crushing of the stone or to its removal by lithotomy. I put the patient to bed, restricted him to a milk diet, administered opium suppositories in sufficient doses to relieve vesical tenesmus and pain, and directed him to drink the Buffalo lithia water in the largest quantities which he could bear. He succeeded in drinking from half a gallon to a gallon every twenty-four hours, and, at the end of about ten days, commenced to pass the detritus of the gravel, as I suppose, in quantities which seemed incredible. At all events, after passing his water upon a clean board, and allowing as much of it to flow off as would, you could then scrape up with a knife a teaspoonful or two (after every passage of urine) of phosphates, urates, etc., closely resembling whitewash which had been applied to the board, and which had there dried. This continued for a week. I then washed out the bladder several times with a warm solu-

tion of boric acid, and Mr. M. was soon on his feet again. At this writing he says that he is perfectly well, and feels, for the first time in many years, entirely free from all kidney or bladder trouble."

Dr. Hammond's Sanitarium, in Washington, is said to contain a greater number of patients now than at any time since it was opened, about a year ago. We learn that Dr. Hammond is making a number of experiments in the treatment of epilepsy by trephining over the site of the suspected brain lesion and paring the convolutions.

American Pharmaceutical Products at the Paris Exposition.—Messrs. W. R. Warner & Co., of Philadelphia, have been awarded a silver medal in recognition of the excellence of their pills and effervescent salts.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending December 6th :

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—														
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping-cough.					
New York, N. Y.	Nov. 30.	1,591,057	566						8	17	3	6						
Brooklyn, N. Y.	Nov. 30.	843,602	292						6	1	23	3						
Philadelphia, Pa.	Nov. 30.	1,040,240	360						7	9	16							
Baltimore, Md.	Nov. 30.	500,343	152						5	1	6	1						
St. Louis, Mo.	Nov. 23.	450,000	140						2	3	7	1						
Boston, Mass.	Nov. 30.	420,000							2		10							
Cincinnati, Ohio.	Nov. 30.	325,000	105						4		6	2						
New Orleans, La.	Nov. 23.	254,000	123								3							
Washington, D. C.	Nov. 23.	250,000	98						5		6	1						
Washington, D. C.	Nov. 30.	250,000							6		3							
Detroit, Mich.	Nov. 23.	250,000	65						1		10							
Cleveland, Ohio.	Nov. 2.	235,000	100						2		8	3						
Cleveland, Ohio.	Nov. 9.	235,000	97						3	2	9	3	2					
Pittsburgh, Pa.	Dec. 3.	230,000	64						2		5							
Minneapolis, Minn.	Nov. 30.	200,000	48						3		3							
Rochester, N. Y.	Nov. 16.	130,000	36						1									
Rochester, N. Y.	Nov. 30.	130,000	28								1							
Providence, R. I.	Nov. 30.	127,000	26						2		1	1						
Indianapolis, Ind.	Nov. 29.	124,450	32						6		2							
Toledo, Ohio.	Nov. 29.	89,000	27						1	1	4							
Fall River, Mass.	Nov. 30.	69,000	22						1									
Nashville, Tenn.	Nov. 30.	65,153	15															
Charleston, S. C.	Nov. 30.	60,145	27								1							
Lynn, Mass.	Nov. 23.	53,000	11															
Lynn, Mass.	Nov. 30.	53,000	13								1							
Manchester, N. H.	Nov. 23.	42,000	16															
Portland, Me.	Nov. 30.	42,000	11								1							
Galveston, Texas.	Nov. 15.	40,000	23															
Council Bluffs, Iowa.	Oct. 28.	35,000	12								5							
Council Bluffs, Iowa.	Nov. 5.	35,000	9								1							
Council Bluffs, Iowa.	Nov. 12.	35,000	5								2							
Council Bluffs, Iowa.	Nov. 19.	35,000	7								1							
Council Bluffs, Iowa.	Nov. 25.	35,000	6								3							
San Diego, Cal.	Nov. 20.	32,000	6															
Yonkers, N. Y.	Nov. 29.	31,000	7															
Altoona, Pa.	Nov. 23.	30,000	7															
Binghamton, N. Y.	Nov. 30.	30,000	9															
Canton, Ohio.	Nov. 22.	30,000	5								1							
Auburn, N. Y.	Nov. 30.	26,000	15															
Haverhill, Mass.	Nov. 30.	25,000	12															
Newport, R. I.	Nov. 21.	22,000	5															
Newport, R. I.	Nov. 28.	22,000	5															
Newton, Mass.	Nov. 30.	21,553	5								1							
Keokuk, Iowa.	Nov. 23.	16,600	5								1							
Keokuk, Iowa.	Nov. 30.	16,000	5															
Rock Island, Ill.	Nov. 24.	16,000	3															
Pensacola, Fla.	Nov. 23.	15,000	4															
Pensacola, Fla.	Nov. 30.	15,000	8															

Oysters.—Oysters are so nutritious and of so much value in many forms of convalescence, as well as so largely employed as a luxury, that it is to be regretted they should have fallen under the ban of a scare. It is so easy, when the public mind is disquieted and alarmed by the prevalence of an epidemic, to fix the blame upon one special article of diet, and to be lulled into a false sense of peace provided that this substance is avoided; but, on the other hand, the connection between the disease and the supposed peccant substance is very frequently imaginary. The relief obtained by branding some possibly innocent substance may occasionally serve to divert attention from some radical sanitary defect, while it also causes an irrational distaste for some article of diet which requires much time and experience to eradicate. Contamination with sewage is justly regarded as a danger, and one of the latest suggestions is that some epidemics of typhoid fever

are to be traced to the use of oysters thus poisoned. It is an undoubted fact that sometimes attacks of diarrhoea follow the ingestion of oysters, but the comparative rarity of this leads many to brave this danger with an easy mind. The proof of the connection between typhoid and oysters can only be established by careful inquiry. So many sanitary defects exist in Dublin that we should be sorry to find the stigma cast upon foreign oysters regarded as a satisfactory solution of the problem, still less as a reason for taking no measures to relieve that city from the frequent and powerful odors which at present pervade it. While it is possible that oysters may cause disease, it is certain that the other question urgently calls for attention and improvement.—*Lancet*.

ANSWERS TO CORRESPONDENTS.

No. 302.—We know of no competent observer of the present day who looks upon the lenticular spots as absolutely essential to the diagnosis of typhoid fever, but most authors agree that their absence or the fact that they are not observed renders the diagnosis doubtful for a time.

No. 303.—They are identical.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Lectures and Addresses.

SOME POINTS IN THE
PROGNOSIS OF VALVULAR HEART DISEASE:

AN ADDRESS DELIVERED BEFORE
THE MEDICAL SOCIETY OF THE PHILADELPHIA HOSPITAL.

By FREDERICK P. HENRY, M. D.,
PHYSICIAN TO THE PHILADELPHIA AND TO THE JEFFERSON
MEDICAL COLLEGE HOSPITALS.

Your flattering invitation to address you found me unusually busy, and my first impulse was, naturally, to decline it. I did not at first see how, in the pressure of other work, I could make ready, in the short interval allowed me, to address you on any subject in a manner satisfactory either to myself or to you. On second thought, however, it occurred to me that I might have something to say on the important and highly practical matter of prognosis.

Much has been said, and with great force, in favor of the view that prognosis is the most important of the various subdivisions of medical science. I do not know that I am prepared to accept this statement as applicable to all diseases, but I am firmly convinced of its truth with reference to those of the heart, and I am sure that a moment's reflection will serve to convince you of it. Imagine yourself in the place of a man hitherto strong, active, and hard working, with children dependent upon him not only for support, but for protection and counsel in the daily emergencies of life. He becomes conscious of a gradual failure of vital power, and is compelled to admit that the source of this trouble is the heart. He feels the deadly arrow in his side. "*Hæret lateri letalis arundo.*" Finally he consults a physician and finds his fears confirmed. Is it not a foregone conclusion that the first question of this man, to carry out our figure, will be, Can the arrow be extracted, or, if not, how long will it rankle there? I am sure I need not say another word to convince you of the paramount importance of prognosis in heart disease.

The idea of sudden death is invariably associated with that of heart disease, and yet, in the majority of cases, we can positively assure our patients that no such event is to be apprehended. It is only of two forms of cardiac disease that sudden death can be said to be the frequent termination, and these are aortic insufficiency and angina pectoris—the true angina pectoris of Heberden. In cases of mitral insufficiency sudden death is a rare event, occurring, according to Leyden,* in about two per cent. of the cases—that is to say, not much more frequently than in individuals with no heart disease whatever. In such cases, therefore, we are quite justified in trying to free the minds of our patients of all dread of an event of such rare occurrence.

In the prognosis of heart disease the age, sex, and mode of life of the patient should be taken into careful consideration. In quite young children the prognosis is most unfavorable, the course of the disease being, as a rule, rap-

idly progressive. I recall the case of a boy of six who was attacked with acute articular rheumatism and mitral disease causing insufficiency, and who died in six months with great ascites and general anasarca.

In youth and early manhood, on the other hand, the prognosis is comparatively favorable, owing to the kind of valvular affections that are most prevalent at this time of life.

In advanced age, according to Leyden, the prognosis is decidedly unfavorable, and this is because the commonest cause of these affections at this time of life is arterio-sclerosis, which is generally a steadily progressive disease. Compensation for valvular defects, however, occurs quite as readily in advanced life as in youth, the heart being probably the only organ of the body of which the relative size increases with age.*

The second part to be considered in the prognosis of heart disease is *sex*, and it may be laid down as a general rule that the prognosis is more favorable in females than in males. This difference in favor of females is not so marked in hospital as in private practice, because the life led by females of the lower classes is not materially different from that of males. They undergo the same privations, and many of them are engaged in severe manual work. Still there is a decided difference, and this is due chiefly to the facts that arterio-sclerosis, a common cause of heart disease, is comparatively rare in the female sex, and that in females those forms of disease are most prevalent which warrant a favorable prognosis.

The mode of life is doubtless the point of greatest importance in the prognosis of heart disease. Manual labor in heart diseases is like the fuel which feeds the fire, or, rather, like the bellows which fans it. For this reason the well-to-do classes are able to resist the progress of heart disease much better than those who depend for subsistence on their own bodily exertions.

The disposition is of almost equal importance, for outbreaks of temper and violent emotions generally act in the same way as severe bodily exertion. In this connection the most interesting case on record to us medical men is that of John Hunter, who had long suffered from angina pectoris and died from the immediate effects of violent excitement. The following extract from the Hunterian oration for 1855, by Joseph Ridge, M. D., will, I am sure, be heard with interest:

"Arrived at the hospital, he found the board already assembled, and, entering the room, presented the memorial of the young men and urged the propriety of their being admitted. In the course of his remarks he made some observation which one of his colleagues thought it necessary instantly and flatly to contradict. Hunter immediately ceased speaking, retired from the table, and, struggling to suppress the tumult of his passion, hurried into the adjoining room, which he had scarcely reached when, with a deep groan, he fell lifeless into the arms of Dr. Robertson, one of the physicians of the hospital who chanced to be present."

* Leyden, "Ueber die Prognose der Herzkrankheiten," "Deutsche medicinische Wochenschrift," Nos. 15, 20, 21, 22, 1889.

* Leyden, *loc. cit.*

Hunter, from all accounts, was a man of ungovernable temper and quite conscious of his infirmity, for before the meeting referred to he had "expressed his apprehension lest some unpleasant dispute might occur, and his conviction that if it did, it would certainly prove fatal to him."

The manner in which the patient responds to treatment is another point of importance in forming our prognosis. There are great differences in this respect. In some cases the usual effect of digitalis, for example, is not easily obtained; in others the effect of this remedy is promptly manifested but speedily exhausted. This drug, and others of the same kind, should be employed with great economy. When the desired effect has been obtained through their use—in other words, when cardiac irritability has subsided and the pulse, from being rapid, irregular, and perhaps intermittent, has become of normal frequency, regular, and free from intermission—the drug should be withheld and an attempt made to maintain the circulatory equilibrium by means of nutritious, easily digestible food, tonics, especially the vegetable bitters, and an occasional saline laxative. The latter is of great service in preventing venous stasis, for it unloads the vessels of any excess of fluid and places them in the most favorable condition for the absorption of proper nutriment.

With reference to prognosis, cardiac affections may be divided into the three customary classes: 1. Non-organic diseases. 2. Diseases of the valves. 3. Diseases of the muscular structure. It is of the utmost importance, from a prognostic point of view, to be able to separate the non-organic from the organic disorders, and yet in certain cases it is extremely difficult to make the distinction. As a rule, the diagnosis of non-organic disease is justified when the most careful physical examination fails to detect anything abnormal either in the size of the heart or in the sounds to which its action gives rise. This diagnosis will receive support if the patient is young, of a neurotic diathesis, and especially if of the female sex. It must not be forgotten, however, that an anæmic murmur may be present, and when this occurs in connection with the manifold subjective and objective symptoms of functional heart disease the diagnosis must often be held in reserve by the greatest expert in cardiac diseases. A few words here with reference to inorganic heart murmurs. There is, I believe, little or no difference of opinion with reference to the fact that they are all systolic. In the majority of cases they are heard only at the base of the heart, though occasionally at the apex. The former murmurs have been called hæmic; the latter, dynamic; but the term inorganic covers them all, for it implies the fundamental fact that, in case of death, no lesion of the valves can be found to account for their existence. We are not entirely ignorant, however, with reference to the mode of their production. Experiments have shown that a murmur is not produced by the quiet flow of fluid through a tube of uniform caliber. If, however, the fluid be forced rapidly through the tube, a murmur is produced, and the ease with which this is done is in inverse ratio to the density of the fluid. Dr. B. W. Richardson, of London, says that "if our blood were reduced to the con-

dition of distilled water, and we could live and hear, as we do now, we should probably always be conscious, not only of the heart sounds, but of a soft, internal, musical murmur, produced in our own vessels."

An inorganic murmur, in short, is produced by blood of low specific gravity flowing through the vessels under high tension. It has long been supposed that the arterial tension in chlorosis, in which these murmurs are most often heard, is low; but this is not the case, as may be proved, not only by means of the sphygmograph, but by the facts that the heart is often found hypertrophied and its second sound accentuated. A loud second sound, of course, implies high tension in either aorta or pulmonary artery. Again, an inorganic murmur does not immediately follow a copious bleeding, as it would if due to low arterial tension, but makes its appearance when the volume of the blood has been restored by the absorption of water. When an inorganic murmur is heard with greatest intensity at the apex, it has been called, as already stated, dynamic, and is caused by mitral regurgitation due to imperfect contraction of the left auriculo-ventricular orifice. During systole, as has been proved by Ludwig and others, the size of the auriculo-ventricular orifice is reduced one half. If, however, the cardiac muscle is weak, as in anæmia, and especially if the blood tension is also high, the closure will be imperfect and regurgitation will result. "This regurgitation is not due to a dilatation of the orifice beyond its normal limits, but to an incompetent contraction during systole, and thus at post-mortem the orifice and valves appear perfect."*

The practical bearing of these remarks is that an examination of the blood may be of decided value in determining whether or not a cardiac murmur is organic. It does not necessarily follow, however, that a cardiac murmur in an anæmic individual is inorganic. In fact, according to Dr. Goodhart,† of London, anæmia long continued may give rise to valvular disease. The doubts concerning the nature of a murmur may sometimes be removed by the effects of treatment. If the murmur persists after the blood has been restored, by proper treatment, to its normal composition, it is organic. If the anæmia persists in spite of treatment and the case steadily progresses to a fatal termination, the doubts concerning the murmur may not be removed until the heart is inspected on the post-mortem table.

Having decided the murmur to be organic—*i. e.*, dependent on some valvular imperfection—the questions which at once arise are: 1. Does the character of the murmur—that is, its seat, intensity, tone, etc.—influence the prognosis? 2. Is there any prospect of a cure?

The best prognosis, other things being equal, is afforded by cases of mitral insufficiency, by which I mean that in this form of valvular lesion compensation is more readily made and maintained than in any other. The worst form of valvular defect is aortic insufficiency, and it is in this variety of cardiac disease that sudden death is most apt to occur. Between these two extremes lies mitral stenosis. Of course

* Garland, "Boston Med. and Surg. Journal," 1883, vol. six. In this article, and in one in the same journal by F. C. Shattuck, will be found a thorough consideration of inorganic heart murmurs.

† "Lancet," vol. i, 1880.

there are numerous exceptions to the rule just laid down. For example, cases of aortic insufficiency of ten, fifteen, or twenty years' duration are not infrequently observed, but, on the whole, the facts will be found to be such as I have stated.

In estimating the gravity of a valvular lesion it is important to observe whether, besides the murmur, the valvular sound can also be heard. When the normal valvular sound is entirely replaced by a murmur, the lesion is more extensive and the prognosis, of course, more grave than when both murmur and sound can be detected. It is a common mistake to suppose that the gravity of the lesion is in direct ratio to the intensity, the loudness, of the murmur, whereas the fact is that loud murmurs are generally more favorable from a prognostic point of view than faint ones. The loudest valvular murmur I ever heard was in a boy, still living, and now about twelve years of age, and was undoubtedly due to a congenital stenosis at or near the orifice of the pulmonary artery. The most singular fact concerning this murmur is that it was detected by the boy's mother. The lad was supposed to have swallowed a cent, and his mother, thinking the coin might be lodged in his throat, put her ear to his chest and heard the murmur. Not understanding its nature, she brought the boy to me. I may say that the congenital defect has never caused the boy any inconvenience, or in any way interfered with his physical development. With reference to loudness of murmurs it is well known that in mitral stenosis the murmur is louder in an earlier than in a later stage of the affection. In other words, the narrower the button-hole contraction of this form of valve lesion, the fainter is the sound to which it gives rise. The specimen I now show you is an extreme example of mitral stenosis. The left auriculo-ventricular orifice has been, as you perceive, converted into a mere slit, and this condition has doubtless been of long duration. Nevertheless, at no time during the two years in which the man was in the hospital was the valvular murmur a loud one. The consequence was that there was much difference of opinion concerning the precise nature of this case. For my part I never felt any doubt about it, because five years before his admission to the Philadelphia Hospital he had been under my care at the Episcopal Hospital, so that I had the great advantage of being able to recall to mind his case in its comparatively early stages.

I have used the word "cure" in connection with valvular heart disease. I propounded the question whether there was any prospect of a cure of this much-dreaded malady. It is easily answered. A number of undoubted cures have been reported by the most competent observers, but the prospect of cure, in the sense in which I am using the word, is infinitesimal. By cure I mean the disappearance not only of all the symptoms, but also of all the signs of heart disease. Such cases are on record, and a number of them have been collected by Professor Leyden, of Berlin, in his valuable paper to which I have alluded.

The question of the disappearance of a cardiac murmur is a delicate one, its presence or absence being, as a matter of course, largely dependent on the existing degree of blood pressure. It is a matter of almost daily observation that

the intensity of a murmur may vary within wide limits, so that these instances of reported cures will always be open to criticism. The fact, however, remains that, notwithstanding the presence of a well-marked murmur indicative of serious functional impairment of a valve, an individual may enjoy a very fair degree of health. I recall the case of a physician, about sixty years of age, who, a few years ago, was a prominent member of the Philadelphia County Medical Society. I met him one day at a committee meeting, and in order, I suppose, to pass the time while waiting for the indispensable quorum, he asked me to examine his heart. I did so and was amazed at hearing a loud, rasping, mitral regurgitant murmur. I could not dissemble my surprise, and, fortunately, there was no occasion for me to do so, for my patient, if I may so call him, knew all about it. "Why, doctor," said he, "I have had that murmur for ten years." He was actually proud of it. He died about two years after the time I speak of, but whether or not from failing cardiac action I am unable to state.

As long as there is perfect compensation for the lesion, the patient with valvular heart disease is conscious of no bodily imperfection. It is a great mistake, however, to encourage such a person in any attempt to compete, whether in the way of business or amusement, with individuals in perfect condition—*i. e.*, if such attempts are attended with physical exertion. The inevitable medical tendency to pass from one extreme to another is nowhere more marked than in the prognosis of heart disease. It is not long since the belief was prevalent that valvular heart disease doomed the patient to a speedy death, in spite of the fact that the individual in whom the diagnosis was made, perhaps by mere accident, was conscious of no cardiac trouble. Such views were definitely disproved by Sir Andrew Clark, who reported six hundred and eighty-four cases of valvular disease which had been in existence for at least five years without leading to any serious impairment of health. A complete reaction from the old pessimistic views at once set in, and, instead of immuring such patients in their homes and condemning them to a life of inactivity, they are now often encouraged to exert themselves to the utmost of their limited capacities. In my opinion, the present tendency is to encourage patients with heart disease to over-exertion. They are not sound, vigorous individuals, and, although they should, as far as possible, keep themselves from brooding over their ailment, they should also never completely forget its existence. The only exercise in which they should indulge to any great extent is walking. Any exertion which involves much use of the arms, such as rowing, is injurious, and tennis, base-ball, or swimming is suicidal. The latter is true of cold bathing, and probably the most injurious combination of exercise possible is swimming in cold water.

In the foregoing remarks I have given you nothing more than the barest outline of the subject chosen for this evening's discussion, and here and there have wandered from it to throw out a therapeutic hint. I trust I have at least succeeded in impressing on your minds the practical importance of the study of prognosis in valvular heart disease.

Original Communications.

EXPERIENCE WITH
EARLY OPERATIVE INTERFERENCE IN CASES OF
DISEASE OF THE VERMIFORM APPENDIX.*BY CHARLES M^CBURNEY, M. D.,
VISITING SURGEON TO THE ROOSEVELT HOSPITAL.

I VENTURE to introduce once more a subject that has been so ably treated by numerous writers, because I have for some time been devoting my attention in suitable cases to a particular line of treatment, and because I have been fortunate enough to have had recently a considerable number of cases of disease of the appendix under my care. Nearly two years ago the account of a case of successful laparotomy for perforation of the vermiform appendix was read before this society by our much-lamented colleague, Dr. Henry B. Sands. The case was a most brilliant one throughout, and illustrated particularly well the cleverness of diagnosis and the rapidity of successful action which we all remember as so characteristic of the reader of that paper. It should not be forgotten that at that time such action was a very bold step into ground that was almost unknown. We did not all agree with Dr. Sands in the views which he expressed in regard to the pathology of perityphlitis, but these views did not prevent him, when the proper case occurred, from making, in regard to treatment, a brilliant stride in advance of others. This case gave an impulse to the study of inflammatory affections of the vermiform appendix from which we shall not recover for a long time. During the following months Dr. Sands devoted much attention to this study, and it was my privilege to assist him in a number of successful operations for the removal of the appendix at an early stage of disease. It seemed to me that each one of these operations shed a flood of light upon the pathology of the so-called pericæcal inflammations, and during the summer following, while discussing this subject, he expressed to me views which were far in advance of most surgeons and very different from those which he entertained at the time when he wrote his last paper. If he were here to-night he would, by the results of his own last year's original work, enlighten us upon many points respecting the pathology of perityphlitis. I feel it a pleasure and a duty to thus refer to Dr. Sands, because, unfortunately, no special record has been kept of his last year's brilliant work, and his sudden death prevented him from telling us himself what would have been so valuable. Certainly no other surgeon ever did so much to improve the treatment of a very fatal disease. Beginning with the first suggestions of Dr. Willard Parker, which taught surgeons how to save many lives, although by a slow and often unsatisfactory process, Dr. Sands ended his work in this direction by showing us how we might cut short at its very inception a disease that is even to-day responsible for many deaths.

It is not my intention in this paper to attempt to pre-

sent the subject of pericæcal inflammations in a systematic manner. That has already been done, and very recently, by a large number of writers. I have chosen rather to dwell upon some points in the pathology and treatment of these inflammations, which are beginning to be better understood and which especially interest us all. The fact that inflammatory affections of the vermiform appendix give rise to a considerable number of the so-called pericæcal inflammations is now accepted in every part of the medical and surgical world, although one still reads of perityphlitis and paratyphlitis, and of intraperitoneal and extraperitoneal abscesses. Certainly all of these terms are misleading, inasmuch as each of them, when used without explanation, implies that the particular disease to which it refers is a disease by itself, and fundamentally different from the others. The usual term perityphlitis means, strictly speaking, nothing more than an inflammation of the peritonæum surrounding the cæcum, but it is understood by many to mean often a localized and harmless peritonitis arising from impaction of fæces, by others a fatal septic disease originating in perforation of the appendix. Now it is unquestionably true that every case of inflammation of the appendix is sooner or later accompanied by inflammation of the neighboring peritonæum, either on the cæcum or mesentery or ileum, etc., but if from the whole list of acute inflammatory affections occurring in the right iliac fossa we set aside those originating in the appendix, how many shall we have left? Very rarely will occur a perforation of the cæcum by ulcer or foreign body, giving rise to a local peritonitis at this point, and traumatism from without may accomplish the same result. For all of such causes as compared with inflammations of the appendix, let me hazard the proportion one in one hundred.

How many cases of localized peritonitis or periphilitis arise from impaction of fæces in the cæcum? Some writers would lead us to believe that this is a frequent cause, and not long ago it was looked upon as the *most* frequent cause. Is there a *single* observation brought from the dead-house or from the operating-table to support this idea? I have never heard or read of such observation, and I do not believe that any such case ever occurred. Clinically we meet with cases of pain in the right iliac fossa, accompanied by some rise of temperature, and not infrequently in these cases we may detect masses of fæces in the cæcum, but no peritonitis exists, and it is no more likely to arise from this cause than from ordinary constipation, which often causes pain and rise of temperature. Correctly speaking, then, peritonitis localized in the immediate neighborhood of the cæcum and characterized by the well-known symptoms may, with the rare exceptions referred to, be attributed to an inflammation of the vermiform appendix in some one of its numerous stages. This inflammation may be a comparatively mild catarrhal one, affecting little more than the mucous membrane, or it may have rapidly passed through various stages to complete gangrene of the organ. I must therefore prefer to use the term inflammation of the appendix, or appendicitis, and give up, once and for all, the terms perityphlitis, paratyphlitis, extraperitoneal abscess, etc., as misleading and not valuable except in explanation of sec-

* Read before the New York Surgical Society, November 13, 1889.

ondary pathological processes. In regard to the so-called extraperitoneal abscess as a result of inflammation of the appendix, there remains nothing to be said to any one who has read Dr. Weir's admirable paper in the "Medical News" for April 27th of this year. The statements and observations which Dr. Weir there makes are perfectly convincing, and I have often confirmed many of them during an operation. As a late result of a much-neglected case, pus may force its way through the lateral or posterior peritoneal lining of the abdomen, but even in very old cases this must be a rare condition, and I have myself never met with such a one. All of these abscesses originating in inflammation of the appendix are intraperitoneal. Inflammatory adhesions, which glue together the adjacent coils of intestine, prevent the contents of the abscess from flowing into the pelvis or among the intestinal folds. At every point the pus is bounded by peritonæum. All of the operations done by the Willard Parker method require section of the peritonæum which forms the anterior wall of the abscess. I have dwelt upon this point because it is a very important one, and one's views in regard to it will determine his operative methods. In this connection I must refer to two other terms—extraperitoneal abscess and extraperitoneal incision for the opening of such abscesses. These again are very misleading, and imply that uninflamed peritonæum can be pushed away from the iliac fossa, the connective tissue broken through, and the abscess evacuated. If these abscesses are, as I have stated, *all* (with possibly a very rare exception) intraperitoneal, then, of course, these terms are false and misleading. The peritonæum may be pushed back and the abscess incised deep in the iliac fossa by a roundabout and unsurgical method, but when incised the peritonæum will be cut. In the present state of surgical opinion, it remains with those who claim that they meet with extraperitoneal abscesses and make extraperitoneal explorations to prove their point. In not a single one of the early operations for appendicitis which I have done and seen done has there been the slightest doubt as to the fact that the incipient abscess was entirely within the peritoneal cavity. I mean that this fact has always been demonstrable to the satisfaction of every one present. This one must consider as a valuable piece of evidence, for the observations were made at a period in the disease when there could be no obscurity as to the actual condition present. Weir has clearly shown also, in the paper already referred to, by carefully analyzing the reports of one hundred autopsies, that in no one of them did the abscess originate in the extraperitoneal tissue, and that in only four was pus found there at all. Weir also states, when referring to the difficulty of demonstrating the intraperitoneal origin of these abscesses after a considerable abscess has formed, that in only eight out of twenty-six abscesses opened by him could he "recognize that the inner wall of the abscess was made up of loops of intestine bound together by adhesions." But, as I have already said, *no difficulty* is found in making this demonstration when an operation is done at an early stage of the disease.

In these early operations I have found a very varied condition of the appendix and its surroundings, from a mild

catarrhal condition of the mucous membrane accompanied by some infiltration and thickening of the submucous and other tissues, to the state of complete gangrene of the whole organ, with more or less extensive peritonitis.

In one instance I removed the appendix from a young lady who in the course of little over a year had had no less than twelve attacks of so-called perityphlitis. These attacks had been severe, giving rise to great pain with rise of temperature, and causing alarm not only to the members of her family, but to her medical attendants, two of these at least being as careful observers as exist in New York. The operation was done during a period of complete health and after careful consultation, to prevent recurrence. The appendix was found rigid and swollen, the mucous membrane mildly inflamed, the other tissues of its walls greatly thickened. Not the slightest evidence of peritoneal inflammation or adhesion existed. The appendix was readily removed and the patient made a rapid recovery. The operation was done nine months ago. Since that time the patient has enjoyed unbroken health, has resumed active exercise, and has gained twenty pounds in weight. In another case, also a young lady, attacks of abdominal pain, accompanied by vomiting, exquisite tenderness in the right iliac fossa, and considerable elevations of temperature, had occurred on four different occasions. This patient had also been taken care of by the most competent men. Curiously enough, just at the time of this patient's last attack her sister died without operation from a violent purulent peritonitis caused by perforation of the appendix. Subsequently to this last attack and during a period of complete health I removed the appendix after careful consultation with her physician, Dr. J. W. McLane, to prevent recurrence. A condition of disease somewhat in advance of the case already narrated existed. The appendix was quite firmly bound by old adhesions to the under surface of the intestinal mesentery and to the cæcum. The mesentery of the appendix had been nearly obliterated; the organ itself was dark-colored, considerably swollen, but soft. The mucous membrane was very dark-colored and swollen, and inclosed some fine fecal grains. Two partial strictures of caliber existed which produced retention of a dirty brown fluid. The evidences of former limited peritonitis existed on the neighboring portion of the cæcum. This patient also made a rapid recovery, being out of bed at the end of two weeks, with a wound completely healed. The operation was done over four months ago, and the patient has remained in perfect health, having gained largely in weight and having resumed active exercise from which she had been entirely debarred. These two cases are quoted at this point to show that comparatively slight conditions of inflammatory disease in the appendix may give rise to threatening illness, which by some would be described as resolving perityphlitis without further explanation. There can be little doubt that both of these cases were preparing for abscess or general peritonitis.

In other cases—all in an acute stage of inflammation—and which will be quoted later, the conditions found have been these: In one the appendix formed a considerable cyst containing nearly an ounce of dark-brown pus. No communication with the cæcum existed.

In several the appendix was swollen, discolored, diseased throughout, but gangrenous only at one or two points where perforation had occurred, and in these cases one or more faecal concretions existed, either within or just outside of the appendix.

In several the appendix was in general only moderately diseased, but perforation had occurred, and quite firm recent adhesions had tied the appendix to some adjacent part, doubling it upon itself and so inclosing a small collection of pus with or without concretion.

In two cases the appendix was thick, but flattened so as to be with difficulty recognized, and very firmly bound to the under side of the cæcum, and in two cases the appendix was completely gangrenous. In all of these acute cases peritonitis existed—usually a plastic peritonitis of greater or less extent—always involving the cæcum and generally the adjacent intestinal coils and abdominal walls. In one case the omentum was quite extensively involved, partly enveloping the appendix. In no case was the appendix more than lightly attached by adhesion to the peritonæum covering the iliac muscles, and in none was *extraperitoneal* inflammation observed, excepting sometimes in the anterior abdominal wall. In most cases some pus was found more or less confined by adhesions within a limited area, and in one absolutely no adhesion of any kind existed, though the appendix was perforated by concretion, and very foul pus filled the pelvis and ran freely upward beside the colon.

The pathological conditions of the appendix, as compared with the symptoms in my own cases, most positively show that one can not with accuracy determine from the symptoms the extent and severity of the disease. I therefore doubt the safety of the advice given by several recent writers, to watch the symptoms and to be guided by their violence in determining the method of treatment. This will appear more clearly in the histories of the cases. I should like now to refer to some of the special symptoms *the weight and value of which have been subsequently determined by an immediate operation*, for it is in this manner that we shall mostly advance our knowledge of the pathology of appendicitis. By autopsy we can not learn very much more in this direction, if one may judge by the length of time it required to learn the important single fact that abscesses originating in the appendix are almost invariably intraperitoneal. Pain to a greater or less extent is present in all cases of appendicitis, but many a mistake has been made and a golden opportunity lost by looking for pain in the iliac fossa and an *absence* of pain in other parts of the abdomen. General abdominal pain is often all that the patient will complain of during the first few hours of his attack, and in many cases it requires a careful and pointed examination to determine that the cause of the pain is situated in the iliac fossa. But after the first few hours it becomes more and more evident that the chief seat of pain is at that point, and the general pain then usually subsides. The epigastric region is frequently the point first complained of. One patient, who died on the third day from violent septic peritonitis from perforation, complained of comparatively little pain even when the iliac fossa was firmly com-

pressed. The *exact* locality of the greatest sensitiveness to pressure has seemed to me to be usually one of importance. Whatever may be the position of the healthy appendix as found in the dead-house—and I am well aware that its position when uninflamed varies greatly—I have found in all of my operations that it lay, either thickened, shortened, or adherent, very close to its point of attachment to the cæcum. This, of course, must, in early stages of the disease, determine the seat of greatest pain *on pressure*. And I believe that in every case the seat of greatest pain, *determined by the pressure of one finger*, has been very exactly between an inch and a half and two inches from the anterior spinous process of the ilium on a straight line drawn from that process to the umbilicus. This may appear to be an affectation of accuracy, but, so far as my experience goes, the observation is correct.* ||

Chill and vomiting are frequent, but so often absent as to be in no sense of much diagnostic value. Fever to some extent is present in all cases, but very different in degree, some severe cases having a temperature on the first day of less than 100.5°, others rapidly reaching a temperature of 103.5°. But, as nearly excluding non-inflammatory pains, the presence of this symptom is certainly of importance. Rigidity in the abdominal muscles, generally much more marked on the affected side than on the other, I have found very constant, and I believe it to be a sign of value.

Abdominal distension by tympanites varies greatly, and its degree by no means measures the severity of the diseased process. It may be very decided during the very first hours of a mild case, and also entirely absent in the worst form of sudden perforation. It must, of course, be influenced greatly by the condition of the patient's bowels, the ease with which the intestine in each individual is brought to a state of paresis, and by many other causes. But when the gut has been found during the operation to be overdistended, the portion of gut so affected has always been the large intestine. Probably paresis from the local peritonitis is here a large factor.

Tumor of greater or less size I have usually been able to detect at a very early stage, but the composition of this tumor, as shown during operation, has varied greatly. In one case the tumor consisted of the distended unruptured appendix, which was partly wrapped in an inflamed and thickened omentum. In another it was formed of a mass of intestinal coils swollen and glued together by recent plastic exudation. This tumor was large, quite firm, and gave one the impression that a large quantity of pus was present; but only a very minute abscess was found, and that was situated quite beneath the cæcum. But under other some tumor can invariably be detected; and this agent will, I think, be found to be a valuable help to diagnosis in some doubtful cases. The tumor may be dull on percussion, as when pus has formed and lies against the anterior abdominal wall; but I have more than once found a small deep tumor containing pus, which was so com-

* Since reading this paper I have carefully observed three other cases. In two the point of pain shown by pressure with one finger was two inches, and in the other an inch and seven eighths from the anterior spine.

pletely covered in front by intestines that the percussion note, before ether was given, was purely tympanic. The pulse during the onset of appendicitis is usually rapid and irritable. The patient prefers to have the right thigh elevated, and objects to its overextension. Rectal examination at the onset I have not found of any value.

The combination of symptoms present will usually render a correct diagnosis as to the seat of the disease quite easy, but in reference to the stage which the disease has reached—that is, whether pus has formed or not, whether the appendix is already perforated or not, even sometimes whether already general septic peritonitis exists or not—the diagnosis is often very doubtful. I remember one case where Dr. Sands performed a beautiful operation and saved the patient's life. At the consultation held before operation four gentlemen were present. Three of them had certainly seen many cases of appendicitis. Three quite different opinions were expressed. Dr. Sands thought that the appendix was perforated, and that pus had formed. One of the others thought there was probably appendicitis, but advised an extraperitoneal incision. Another thought the case so mild that it should be treated without operation. Dr. Sands operated by an incision along the right edge of the rectus muscle, opened an intraperitoneal abscess just in the middle of his incision, and removed a perforated and sloughing appendix. The patient rapidly recovered. This case occurred very shortly after Dr. Sands read his last paper before this society. I mention it simply to show that the diagnosis of the exact condition in such cases is not easy. A means of diagnosis lauded by some, permitted by others, and totally condemned by a few, is the exploring needle. I believe that the use of this instrument will become less and less frequent as we know more of the disease. While perhaps occasionally permissible at a late stage of the disease, it is certainly totally to be condemned at its beginning. The discovery of pus with the syringe is, to be sure, gratifying to a hesitating operator, but the withdrawal of an injected needle through several layers of peritonæum, which it may have passed during its introduction, can totally nullify a good subsequent operation. And, if the needle does *not* discover pus, which has often happened even when that fluid has been present in considerable quantity, then the man who pinned his faith on a needle is induced to underestimate the importance of the case and its mode of treatment.

Some years ago I went a long distance into the country prepared to operate upon a nine-days-old abscess, the result of appendicitis. There existed a large fluctuating tumor, and the case was plain and needed just one cut. But the family physician was very conservative, and said the time had not come, and that there was no pus. I was in despair, for the journey took many hours. Fortunately, I had a good hypodermic syringe with me. The doctor said rather superciliously that that thing was harmless anywhere. So he permitted its introduction; and when the barrel filled with pus he yielded to an operation, and treated me afterward with great respect. But to search for pus with a needle, first in one direction and then in another, at the risk of doing harm, and with no certainty of acquiring

any real information, is a practice as unsurgical as it is unnecessary.

I think that there is still much misapprehension in the minds of many practitioners as to the symptoms produced by perforation of the appendix. Many associate with this condition, and with no other, a very violent onset of the disease with quite well-marked symptoms, as compared with the less severe commencement of a slowly forming abscess. The truth is that, in the early stage, no accurate diagnosis can be made as to whether the appendix is perforated or not, excepting in those cases where comparatively mild symptoms *suddenly* become much aggravated, when perforation or the rupture of an abscess may be inferred. Perforation often occurs with but few symptoms at the very beginning of the disease, but, being preceded by the formation of more or less plastic adhesion of the appendix, no sudden increase in the severity of the disease occurs at all. An abscess slowly forms, which may increase to a considerable size without being discovered, and then force its way, or proceed by infection, in the most dangerous directions. The comment might fairly be made upon this description of the early symptoms of appendicitis that the diagnosis of the disease is very obscure and uncertain. To the careful observer it is not difficult, however, to determine as to the existence of the disease. The only real difficulty lies in determining within the first few hours what the future progress of the disease is to be in deciding whether firm adhesions are forming, which will effectually exclude pus from the general peritoneal cavity, and so provide for subsequent safe evacuation of abscess, or whether no such protecting wall exists, and an overdistended appendix threatens to instantly set up a fatal peritonitis. If this difficulty could be set aside by a more careful study of symptoms, and without losing valuable time, our course would be clear, and we should no longer helplessly hesitate as to when to operate and when to stand aside. There is no reason to think, however, that diagnosis from symptoms alone will ever reach that perfection. We need some further aid to diagnosis; some positive and rapid means of determining what method of treatment we are to adopt. We have reached a point where we can never be satisfied with the mortality that attends an expectant treatment. What we wish to accomplish in the treatment of appendicitis is, not to save half of our cases, nor four cases out of five, but *all of them*; and how is this end to be attained except by improved methods of diagnosis at the very earliest stage of the disease? I hope that I may never again go every day to visit a threatening case, waiting bashfully for the authority of a clearly defined general peritonitis before I dare take action. I do not mean to deny that many very ugly-looking cases of appendicitis go on to the formation of abscess which may be safely opened and end in complete recovery; we have all of us seen many such. I am well aware that numerous cases have presented all the symptoms of the disease, have become very ill, and have finally recovered without any operation. Within two years I have seen two cases, in one of which the patient was so ill that I refused to operate, and in the other case I strongly urged operation and was refused permission. Both of these patients recovered after long illness without

operation of any kind. Probably the abscesses emptied themselves at some point into the intestine. But such unexpected recoveries, and the frequent formation of abscesses which can be opened safely at a later stage, even the many cases which quite rapidly terminate, at least temporarily, without suppuration, do not console us for the heavy mortality caused by appendicitis. What this mortality has been we shall of course never know. We do know that the cases which are recognized and which die are numerous, and it is safe to assert that a very large number of fatal cases of peritonitis commence with an unrecognized inflammation of the vermiform appendix. No one will dispute that if we could so improve our methods of diagnosis that we could recognize within the first few hours the serious nature of many cases, we would operate in these cases at once, willingly preferring to incur the risks of an operation rather than face the certainty of death that septic peritonitis implies. How may we improve our methods of diagnosis? At present I see no clearer road than the exploratory incision permitting a direct inspection of the parts and a complete study of the disease. If it can be shown by future experience with improved methods of operation, and with more perfect antiseptic precautions, that the exploratory incision for inspection of the diseased appendix is much more free from danger than the expectant treatment, then there could be but one answer to the question, What is the best treatment? The firm conviction that very early operation for the cure of appendicitis can, with proper care, be done with very slight risk, has induced me to subject a considerable number of these cases to the earliest operation possible, and my chief purpose to-night is to present to you the results of my work in this direction. It is proper to state that no case of appendicitis has been refused operation, and that all the cases operated upon in the early stage of the disease are here reported:

CASE I.—E. M. P., a young gentleman nineteen years of age, complained of general abdominal pain at 11 A. M. on May 21, 1888. The pain was regarded as due to indigestion, and was treated with family remedies. In the afternoon the patient fainted, and by four o'clock his pain had greatly increased in severity. He received a little morphine and hot applications were applied. At 5 P. M. his mouth temperature was 98.4°, his pulse 100. During the night and the following day the patient complained sometimes of severe pain, and occasionally felt much better; he took a considerable quantity of milk, and at 8 P. M. his temperature was only 100°. During the second night he suffered much pain, and at 5 A. M. on the 23d it was noted that his pain was chiefly in the right iliac fossa. At 5.30 he had a severe chill and his temperature rose to 103°, his pulse to 120. At this time he was visited by his physicians, Dr. Fessenden N. Otis and Dr. William K. Otis, who diagnosticated at once acute appendicitis, and requested me to see the patient. This I did at about 8.30. I found the pulse and temperature as stated, and the following condition: Great rigidity of right abdominal muscles; exquisite tenderness on pressure at a point just two inches internal to the anterior spine of the ilium, in the direction of the umbilicus. Beneath the finger at this point could be felt a small resisting mass, less than one inch in diameter. No dullness on percussion anywhere. General appearance excellent. The diagnosis of appendicitis already made by Dr. Otis was confirmed by myself, and an hour later by Dr. Sands. Immediate operation advised and accepted.

General appearance of patient excellent. It should be noted that at 11.30 the temperature had fallen to 101°.

Operation at 12 o'clock, just forty-nine hours from the first pain. Present, Dr. F. N. Otis, Dr. William K. Otis, Dr. L. R. Morris, and Dr. Tuttle.

Ether anæsthesia. A slightly oblique incision four inches and a half long, the center of this incision being two inches from the anterior iliac spine toward the umbilicus. Tissues of abdominal wall quite markedly œdematous, particularly near the peritonæum. On opening the peritonæum freely, the appendix came at once into view. It was larger than a man's thumb, dark-brown in color, tense, evidently full of fluid, and at no point gangrenous, but its wall evidently nearly as thin as paper. A tail of omentum partly enveloped it, and this was much inflamed and freshly adherent. Everywhere else the peritonæum was healthy, and not an indication of the formation of any bounding wall of adhesions existed. Coils of small intestine surrounded this full-to-bursting sac. The omentum was gently separated and the inflamed portion ligated and cut away. The mesentery of the appendix was carefully tied in sections, and the base of the appendix dislodged from an inverted pouch of cæcum, ligated at its base, and cut away. It proved to contain at least half an ounce of very foul brown pus, but no concretion. Its communication with the cæcum was closed by stricture, so that the unbroken, purulent, acutely inflamed cyst was removed entire. The stump was disinfected with 1-to-1,000 bichloride solution. Two silver-wire sutures passing through the whole thickness of the abdominal walls closed the upper part of the wound, and one similar suture the lower part. The central portion was loosely packed with iodoform gauze down to the ligated stump. Dressing of iodoform and bichloride gauze over all.

At 6.40 P. M., less than six hours after the operation, patient's temperature was 99.8° and pulse 80. A small quantity of morphine was given for wound pain. The dressings were changed on the third day, and a perfectly aseptic condition of wound found. This patient made a rapid and absolutely unbroken recovery, and is to-day perfectly well.

This is, I believe, the first recorded case where an acutely inflamed unruptured appendix has been removed full of pus. Who can doubt what the result would have been in this particular case had the cyst ruptured, and the operation been delayed a few hours? Would not the opportunity for recovery have been lost had the advice so often and so recently given been followed—to delay operation until symptoms of spreading peritonitis appeared?

CASE II.—John S., ten years of age, was admitted to my care at the Roosevelt Hospital on August 19, 1889. He gave no history of previous attacks. A week ago he became ill, and complained of general abdominal pain. He went to bed, and says that since that time he has been feverish and has not been free from pain. Four days ago the chief seat of pain is said to have been in the right side and low down. On admission his pulse was 110, his temperature 103.4°, and he was nauseated. Between the umbilicus and the right iliac spine was noted a considerable tumor, which was markedly tender on pressure. The percussion note over the tumor was dull. No tympanites existed. The general appearance of the patient was that of severe illness. I operated on the same day. The usual incision was made, and the tissues found in a normal condition down to the peritonæum. The anterior peritonæum itself was perfectly uninfamed, and uninfamed small intestine covered the anterior face of the tumor. When these were drawn toward the median

line, a mass of adherent intestines was disclosed, which inclosed a small indurated tumor.

The intestinal coils were gently separated on the anterior face of the tumor, and several drachms of fecal pus at once escaped, emptying a cavity somewhat tubular in shape and large enough to admit the finger. The appendix lay in this cavity, congested, much swollen, and infiltrated with pus. No perforation existed, and no concretions were found. The appendix was tied off with silk and removed. A rubber drain was introduced, the cavity packed with iodoform gauze beside the drain, and a full antiseptic dressing applied.

On the following day, August 20th, the boy's temperature was 99.6° as against 103.4° of the day before, a reduction in less than twenty-four hours of nearly four degrees. This patient recovered rapidly and completely, and on September 25th his wound was entirely healed.

CASE III.—W. K., a male, sixteen years of age, was admitted to my care at the Roosevelt Hospital on July 26, 1889. Previous history negative. Forty-eight hours before admission first felt pain in the right iliac fossa. On the next day diarrhoea set in; abdominal pain was quite general, though more distinctly localized in the right iliac fossa than elsewhere, and this increased up to the time of admission to the hospital. The patient's temperature was then 102°, his pulse 110. The abdomen was slightly distended and tympanitic. In the right iliac fossa was found a small, very tender non-fluctuating tumor, which lay just inside of the anterior iliac spine. Diagnosis, acute appendicitis.

Operation at 3.30, July 26th. The usual incision was made. Beneath the incision were found normal non-inflamed intestines. These were drawn toward the median line, when the appendix was found projecting stiffly forward and slightly upward by the inner side of the caput coli.

It curled around the end of the cæcum and then turned upward and forward. Slight recent adhesions tied the appendix at its base only to the cæcum. At other points it floated freely among non-inflamed intestines. The adhesions were broken down and the appendix ligated at its base and removed. It was six inches and a quarter long, œdematous, and much thickened and inflamed throughout. Minute foci of pus were scattered through its substance, but there was no concretion and no perforation. On its removal the seat of operation was left perfectly clean, but, to insure safety, a rubber drain was passed through the loin directly to the base of the stump, and the anterior wound was partly closed and partly packed with iodoform gauze. The next day patient's temperature was 100°. His wound was inspected, but not dressed completely until July 30th. No pus was found. This patient made an unbroken recovery without incident, and his wounds were completely healed on August 19th.

CASE IV.—Annie O., eighteen years of age, was admitted to the medical wards of the Roosevelt Hospital on May 29, 1888. Six years ago she had an attack similar to the present one from which she entirely recovered without operation. Two days ago she was seized with severe epigastric pain accompanied by fever and headache, and tenderness on pressure in the right iliac fossa. On admission, the abdomen was tense, tympanitic, tender on pressure at all points, but more especially in the right iliac fossa. Here a small tumor is distinctly felt. I saw this patient for the first time on May 30th, and, having expressed the opinion that she should be operated upon at once, she was transferred to my care. At this time her symptoms had become much more threatening; abdominal distension was extreme. Her temperature was low, 100.4°, pulse 100, respiration 36. I operated at once, making the usual incision. The tissues of the abdominal wall were œdematous and the deeper ones much fused together. Beneath

the center of the incision the distal end of the appendix was readily found. It was much enlarged and thickened, and greatly discolored. At first no pus was seen, but, on gently separating the end of the appendix from adjacent parts, a small cavity was found beneath it containing less than one ounce of pus. The cavity was cleansed with hot water, and it was then seen that the appendix was perforated at about its middle and lying in the perforation was a large fecal concretion. The whole appendix was then removed after ligating the base, the cavity was swabbed with 1-to-1,000 bichloride solution, two rubber drains introduced, and the cavity packed with iodoform gauze. A complete antiseptic dressing was applied. On June 1st the patient's temperature was 99°, pulse 100, respiration 18. Abdomen free from pain or distension.

This patient made an unbroken recovery, being out of bed on June 23d, with a small, superficial, flat ulcer still to heal.

CASE V.—Charles E. A., twenty-five years of age, was admitted to the Roosevelt Hospital on September 1, 1889. Patient gives a history of probable appendicitis occurring five months ago.

Two days ago, after several weeks of abdominal discomfort, the patient was seized with severe abdominal pain, nausea, vomiting, and fever.

On admission, his temperature was 102°. Internal to the anterior iliac spine, on the right side, some resistance and tenderness on pressure were noted. Diagnosis, appendicitis.

On September 2d, under ether narcosis, the usual incision was made, the tissues of the abdominal wall being found very œdematous. Marked adhesions and thickening of the peritonæum were found over a large area, indicating clearly the existence at some previous time of a quite extensive peritonitis. This probably occurred during the attack referred to above. The appendix was found, after some difficulty, hanging over the edge of the pelvis, greatly thickened and hardened. After being freed from adhesions, it was ligated close to its base and removed. The immediate neighborhood of the stump was cleansed and the space packed with iodoform gauze. The upper portion of the abdominal wound was closed by suture. With the exception that a slight superficial abscess developed beneath the suture line, this patient made an easy recovery, and was discharged, with a wound completely healed, on October 17th. This patient was operated upon by Dr. Frank Hartley, my first assistant at the hospital.

CASE VI.—Miss E. C., twenty-five years of age, a patient of Dr. W. T. Alexander, of this city, had complained of a sense of uneasiness and discomfort in the right abdominal region, low down, for two or three weeks. She had, however, gone about as usual, and walked several miles daily. On June 18, 1889, in the evening, she was seized with severe general abdominal pain, most severe in the epigastrium, and was nauseated. She went to bed, and was then first seen by Dr. Alexander, who diagnosed appendicitis, and ordered hot applications and a little morphine, with complete rest in bed. On the following day Dr. Alexander asked me to visit the patient. This I did in the afternoon. The patient's temperature was then 101°, and her pulse 100. She had a very ill look, and complained bitterly of the slightest pressure over the right iliac fossa and of some tenderness all over the abdomen. I advised immediate operation. There were present at the operation Dr. W. T. Alexander, Dr. G. T. Jackson, and Dr. R. P. O'Neill, and these gentlemen assisted me.

I made the usual incision. The tissues of the abdominal wall were normal, and within the peritoneal cavity scarcely the slightest trace of adhesions was found. The appendix, nearly completely gangrenous, as large as one's middle finger, lay just outside of the caput coli, not perforated, but containing two large fecal concretions, just ready to escape through very soft

gangrenous tissue. A little purulent fibrin lay beneath the appendix. No limiting wall of any kind existed, and reddened small intestine lay above and below. The mesentery of the appendix was carefully and with some difficulty tied off, the appendix ligated at its base and removed. The immediate neighborhood was then thoroughly cleansed with 1-to-1,000 bichloride solution, dusted with iodoform, and packed with gauze. A rubber drainage-tube was introduced beside the gauze down to the stump. The upper part of the incision was closed with two sutures. The patient suffered from nausea and tympanites for two or three days, when her temperature fell to normal and remained so. On the seventh day the wound discharges were decidedly faecal, and continued to have this character for about a week. The wound then became perfectly healthy and rapidly healed. This patient has gained greatly in health and weight, and has been, up to date, perfectly well.

CASE VII.—Edgar C. B., a stalwart young man, twenty-one years old, complained of pain in the lower part of the abdomen during the evening of January 13, 1889. The next morning, when he had gone to work, this pain spread through the whole abdominal cavity and became very severe. He reached home with difficulty and went to bed. During the afternoon of the 14th—that is, at the end of about twenty hours—the pain localized itself chiefly in the right iliac and lumbar regions. At noon on the 15th he had a chill, and, feeling very ill, came to the Roosevelt Hospital in the evening. His temperature was then 101.6°, pulse and respiration about normal. The abdominal muscles on the right abdominal half were rigid, and very acute tenderness was complained of when pressure was made over the right iliac fossa about two inches inside of the anterior iliac spine. No tumor could be felt. The diagnosis of acute appendicitis was made, and I determined on an immediate operation. This was done at 11 P. M., as nearly as possible forty-eight hours after the first symptom. The usual incision was made. The tissues of abdominal wall were found in a normal condition. Beneath the line of incision were coils of non-inflamed small intestine. These were pushed inward, exposing a mass of small intestines matted together by adhesions and quite free from the iliac fascia. After a short search, and after breaking down some of these adhesions, the appendix was found, passing backward and inward from the cæcum, then doubling back upon itself. It was closely tied by adhesion to the cæcum and adjacent mesentery. The adhesions were broken down, the mesentery of the appendix tied off in sections, and the appendix itself ligated at its base with catgut and removed. The appendix was much diseased, thickened, and distorted, but not ruptured. On section I found within it some black, semi-fluid material. The mucous membrane was gangrenous throughout, and the wall of the appendix at one point gangrenous *as far as the peritoneal coat*. The stump was sponged with 1-to-1,000 bichloride solution. The upper part of the wound was closed with silver stitches, a rubber drainage-tube passed down to the stump, and the open wound packed with iodoform gauze. During the next twenty-four hours considerable pain was experienced, and for a few days constipation was obstinate. On the morning of the 17th the temperature became normal and remained so throughout convalescence, which was unbroken and entirely completed by February 11th. A small superficial ulcer was completely healed on February 21st.

CASE VIII.—C. G. McK., a young gentleman twenty-three years old. First attack of pain in right iliac fossa two years ago. Second attack in May last, when he was confined to bed five days with fever and severe pain and tenderness in the same region. On Thursday morning, October 17th, he had a sudden attack of severe pain in region of appendix, went to bed, and his temperature was noted to be 99°. In the evening his tempera-

ture rose to 100°. Pain and tenderness steadily increased. Friday he remained in the same condition, and was seen by me, at the request of Dr. E. E. Swift, later at night. The patient was haggard and looked ill. Tenderness on pressure about two inches inside of the iliac spine was very marked. An ill-defined tumor existed, and decided distension of abdomen. Operation was advised, but the circumstances were such that it was postponed until twelve o'clock on the following day.

Operation October 19, 1889. Ether anæsthesia. The usual incision was made. On opening the peritonæum, an enormously distended caput coli filled the wound and rendered the search for the appendix extremely difficult, forcing me to handle the intestines far more than was to be desired. The appendix was at last found, flat, wide, and so firmly adherent to the under surface of the cæcum as to be identified with great difficulty, and numerous firm old adhesions prevented the free movement of intestines and at one point formed a nearly constricting band. An indurated mass beneath the center of the appendix was opened with the finger by separating adhesions which, however, were very strong, and many of them evidently old. From this mass about a drachm of foul faecal pus escaped and was sponged away. The difficulty of dissecting away the appendix was so great that I was finally obliged to desist and to be satisfied with removing only that portion of it which formed the wall of the abscess. The cavity was very thoroughly cleansed, and an attempt made to return the prolapsed large intestine and close the wound. This was found to be exceedingly difficult, owing to the very excessive distention of the gut, and much time was expended and much handling of gut necessitated. Finally the wound was closed as in other cases, the lower part being packed and drained. The patient recovered well from the effects of the operation, but at the end of twenty-four hours his temperature rose to 102°, and the abdominal distension increased. He was bright and looked fairly well, however, and I did not expect serious illness. His temperature, however, continued to rise, symptoms of peritonitis developed, complete paresis of bowel persisted, and the patient died at the end of four days, of peritonitis. No autopsy could be obtained.

Whether the difficult and unusual handling of the intestines was the chief cause of peritonitis, or whether constricting bands, formed by old adhesions, caused actual obstruction, I am unable to say. No movement of the bowels could be obtained and no flatus passed after the operation excepting by the aid of a long rectal tube. Certainly the peritonitis was not septic, and such was the opinion of Dr. Delafield and Dr. Swift, who visited the patient with me. Moreover, when, on the second day, I removed the packing, I found a perfectly healthy wound, without the slightest sign of infection. One thing is clear—that, had the operation been done during the patient's first attack two years ago, none of the great difficulties which I met with would have been encountered.

I stated at the beginning of this paper that I did not here intend to review the treatment of appendicitis in a systematic manner, but I should not do justice to the real subject of this writing were I to drop the matter at this point. I must, in the first place, as accurately as possible, define the class of cases of appendicitis to which I have applied the method of treatment described; and then I wish to devote a few minutes to a description of the technique of the operations. I have presented eight cases of appendicitis operated upon at an early stage of *acute* inflammatory process. These eight cases include *all* of those

operated upon since May 20, 1888, to date. Previous to May 20, 1888, I had never operated upon a case except by the older methods. During this period of eighteen months I have seen and operated upon a much larger number of cases of appendicitis at late stages in the disease—that is, when extensive abscess has existed, and in some cases of early general septic peritonitis due to appendicitis. Such cases are excluded from the list given, as belonging to an entirely different category. I have measured the stage of the disease, not by the number of hours or even days that it has existed, but by the character and extent of the inflammatory process, all cases being included in the list excepting those where it was clear that large, comparatively safe abscess was forming, or where general septic peritonitis was already established. I should, moreover, state that in every case operation has been done as soon as possible after being seen, excepting that in the fatal case various circumstances, contrary to my wish, necessitated a delay of about twelve hours. In no case has a diagnosis of appendicitis been made which has been subsequently proved by operation to be incorrect. To those who have been in doubt as to whether the operation or the disease carries with it the most danger, I think these cases, although limited in number, must be convincing in favor of the operation. All will acknowledge that every case of appendicitis may, so far as the cleverest observer can tell, have to pass by many very dangerous obstacles before reaching the smooth water of a comfortable abscess. For my part, I would endeavor to insure safety early, before reaching the rapids, rather than trust to finding my way with my eyes blindfolded through a dangerous passage. I am familiar with the good-natured jest that the surgeon is now ready to cut every one who has a stomach-ache. The death-rate from appendicitis within the professional circle of New York alone is a sufficient answer to that criticism.

But I should be much misunderstood if I should give the impression that, while I believe the operation to be less dangerous than the disease, I also believe the operation to be simple and easy of execution. I look upon it as often an exceedingly difficult one, and one which requires as much care and patience and attention to detail as any with which I am familiar. Moreover, I have never seen two cases of appendicitis operated upon in which the pathological conditions, the position of adhesions, the relation of surrounding parts, etc., were very nearly alike. Every case presents some new problem, and in every case there is large opportunity for the exercise of careful judgment as to how best to meet this or that difficulty. Of course there must be pioneers, as Sands was, and such may be the most successful, but my strong feeling is that it is well worth while for any one who may have to do this operation to see it done, at least once, first.

Before describing the steps of the operation, I refer again to the important aid to diagnosis of which I have already spoken—namely, the ascertaining, by the pressure of a single finger-tip, that the point of greatest tenderness is, in the average adult, almost exactly two inches from the anterior iliac spine, on a line drawn from this process through the umbilicus. Much greater tenderness at this

point than at others, taken in connection with the history of the case and the other well-known signs, I look upon as almost pathognomonic of appendicitis. This point indicates the situation of the base of the appendix, where it arises from the cæcum, but does not by any means demonstrate, as one might conclude, that the chief point of disease is there. The abscess, or concretion, or cyst may be at quite a little distance, but the greatest pain, on pressure with one finger, will be felt at the point described.

The incision should be a liberal one, for much room may be required, and a five-inch cut in the adult is not too much. It should follow as nearly as possible the right edge of the rectus muscle, and the center of the incision should lie opposite to or a little below the anterior iliac spine, on a line drawn to the umbilicus. When the external oblique aponeurosis is cut through by this incision, the aponeurotic structure, in which the other abdominal muscles end, comes into view, and is easily divided without cutting muscular fiber. Then the fascia transversalis, the subperitoneal fat, and the peritonæum are cut in succession. If pus has formed close against the anterior abdominal wall, these last-mentioned tissues will be found infiltrated with serum, and even thickened so as to look like cheesy tubercle. Otherwise these parts may appear perfectly normal. On opening the peritonæum the appendix may at once be seen, or adhesions and inflammatory exudations may have so distorted the parts that a careful and difficult search may be required to find the appendix at all. It may be flattened out and glued firmly to the inflamed surface of the cæcum by old and recent adhesions, or it may be coiled upon itself and buried out of view in a mass of lymph. The finger is often quicker than the eye to detect the appendix in these conditions, as it is very certain to be found where the greatest thickening, as felt by the finger, exists. More than once I have had to turn the cæcum out of the wound and examine carefully the usual region of origin of the appendix before I could identify it. Usually then with the finger or a dull-pointed instrument the adhesions can be broken down or tied off, as may seem required by vascularity. If the appendix has been thus separated, I have usually tied it off with silk or catgut close to the cæcum and cut it away, and generally between two ligatures. Careful disinfection of the stump should be made. I have scraped its interior and disinfected with 1-to-1,000 bichloride solution, and then rubbed in iodoform. Once, where it looked dangerous, I tied with silver wire, and then used the fine-pointed cautery to disinfect. If thoroughly cleansed, it seems to be unnecessary to lose time in sewing the peritonæum over the stump, as recommended by Treves. When the appendix has been removed nothing remains to be done but to disinfect the whole neighborhood, insert a drain, and pack the small space with iodoform gauze. The upper half of the wound may perfectly well be tightly closed with stout sutures, which should include the whole thickness of the abdominal wall—peritonæum as well. In some cases I believe it to be good practice to introduce a large drain by a separate opening well above and behind the iliac spine, for in some cases the region of disease may extend especially in that direction.

But the question may fairly arise in any case as to whether it is wise to attempt to dissect out the appendix and remove it. If the difficulties of dissection would evidently be very great, I think it is better to open the abscess if there is one, cleanse the cavity, and, leaving the appendix *in situ*, pack and drain the wound.* The packing I have usually removed on the third day and replaced it with less, and the cavity has rapidly granulated. If, at the time of operation, one introduces sutures throughout the whole length of the wound, leaving the central and lower ones loose, these can subsequently, after one or two dressings, be tied, and the wound thus rapidly narrowed. Over the whole wound, of course, a complete dressing is applied, and good bandaging is better than any binder, to prevent the possibility of extrusion of gut by ether vomiting or intestinal distension. None of my patients have developed a hernia at the site of operation. I have kept them all in bed for four weeks or more. None have had any recurrence of inflammatory action of any kind.

A few more words, Mr. President, and I have finished. Are there any contra-indications to this operation in a clear case of appendicitis? I think there are. Very great abdominal distension, which might in a given case probably be relieved by a few hours' treatment, would lead me to delay the operation, for expulsion of intestine is a very serious obstacle to the proper completion of the operation without risk. Unusual obesity I should regard as a good reason for a more expectant method of treatment. But the most important contra-indication of all is the absence of any one of the necessary safeguards and aids, such as the best assistance, the best light, and the best appliances for performing a perfectly aseptic operation.

NOTE.—Since writing the foregoing paper, I have operated in three other cases of acute appendicitis. One of them was that of a lad, fifteen years old, a patient of Dr. G. A. Spalding's. The operation was done at the fortieth hour of the disease, the temperature being high and the symptoms very threatening. The appendix, much diseased and containing two large concretions, was removed. The temperature fell on the following day to 99°, and has been normal ever since that time. The patient is now safely convalescent.

The second case was that of a patient of Dr. Jarecky's, fifteen years old. The operation was done at the beginning of the fifth day. The appendix, gangrenous at two points as far as the peritoneal coat, was still not perforated even at this late date. It was removed, and the patient is now safely convalescent.

The third patient, already referred to in a note, is nearly well. None others have been operated on in an acute stage of inflammation up to date. The number of operations is, therefore, eleven. Of these, one proved fatal, probably from obstruction by a band not discovered.

The Health of Connecticut.—According to the State Board of Health's "Monthly Bulletin," the total number of deaths reported from 168 towns during the month of November was 896, including 8 from scarlet fever, 13 from cerebro-spinal meningitis, 77 from diphtheria and croup, 5 from whooping-cough, 1 from erysipelas, 26 from typhoid fever, 7 from malarial fever, and 5 from typho-malarial fever. There were also 121 deaths from consumption, 58 from pneumonia, and 28 from bronchitis.

* In a case operated upon since writing this paper, it would have been a dangerous proceeding to remove the deeply seated and strongly adherent appendix. I broke its wall at one point, and then drained through the loin and packed in front. The treatment was completely successful, and the patient is safely convalescent.

PERITYPHLITIS.*

By FRANK HARTLEY, M. D.

MR. PRESIDENT: The case I present this evening is one of perityphlitis with suppurative peritonitis. Though it does not strictly belong to the class of cases reported by Dr. McBurney, it is nevertheless interesting, as I think it shows us that, no matter what the condition within the peritoneal cavity, we may now and then succeed in giving material benefit.

This patient, Louis E., fifteen years of age, was admitted to the Roosevelt Hospital, June 1, 1889, under my care. His family history was good. He had never been sick but once, and that sickness was probably plenrisy. He had never before his present illness suffered from pain in the right iliac fossa, nor was he subject to constipation or diarrhœa. His present illness began fourteen days before admission, with a sudden and intermittent pain in the abdomen about its midline. This was increased after each meal and upon any exertion. For eight days he had no other symptoms than this pain. At the end of the seventh day his physician administered a rectal enema without effect. On the eighth day the pain was felt in the right iliac fossa for the first time, and at this time it became continuous and of a "dragging" character. Headache and weakness were now present, but no fever. On the eleventh day there were added to the symptoms already present repeated severe chills, increased sleeplessness, cold sweats, and complete anorexia. On the morning of the fourteenth day the pain became more general and more severe, though in the right iliac fossa the tenderness was more marked than elsewhere. He had been treated up to the present time for typhoid fever.

On admission he was of slender build, emaciated, features pinched, and showing a distinct septicæmic cachexia. Heart normal. Lungs, a few friction râles at base. Abdomen moderately distended; tender in every portion. The right iliac fossa presented no distinct tumor, but the examination was unsatisfactory on account of the pain and tympanites. Slight dullness in iliac fossa. Resistance to pressure was more marked here than elsewhere. Rectal examination showed a tender, slightly bulging spot on the right side. Respiration, 26, thoracic; pulse, 120, weak; temperature, 101° F. He was very restless, and lay in bed with his knees drawn up.

Patient was stimulated with whisky and Magendie's solution, five minims, before operation. Disinfection of skin over abdomen. Incision, on outer border of rectus muscle, six inches. Peritonæum was seen to be, before incision, thickened, œdematous, and inflamed. When opened, a large amount of fœtid gas escaped, and a general suppurative peritonitis was disclosed. This consisted of purulent foci, of fibrino-purulent exudate, and, in places far removed from the iliac fossa—upon the small intestines and the mesentery—of a catarrhal exudate. The greater portion of the intestines were not agglutinated, but where the purulent collections were found they were agglutinated by recent fibrino-purulent exudation. These coils of intestines presenting were quickly turned aside to allow an exposure of the vermiform process; it was found lying in a cavity containing fully half an ounce of foul-smelling and greenish pus and formed by a dome of agglutinated intestines and a floor of what appeared to be peritonæum and iliac fascia, which was very œdematous, infiltrated, and gangrenous. The cavity of the abscess was wiped out with sponges soaked in a solution of bichloride of mercury (1 to 1,000), and the peritoneal cavity was

* Read before the New York Surgical Society, November 13, 1889.

itself protected by sponges from the contents of this abscess. The appendix, two inches and a half in length, lay behind the caput coli and firmly adherent to the iliac fascia. The iliac fascia, at the point of attachment of the vermiform process, was gangrenous. The vermiform process was perforated at its point of attachment and upon its median surface. No concrement was found within it, but several loose faecal concretions were found loose within this cavity. The whole appendix was frail and sloughy, its surface being covered by a fibrino-pus. The appendix was removed, its base ligated with silk, and its end cauterized with Paquelin's thermo-cautery. The whole abscess cavity was carefully sponged out with a solution of bichloride of mercury (1 to 2,500), and iodoform powder rubbed into it. The suppurative peritonitis was now traced up, and all the intestines covered with pus and fibrin were in succession brought out of the wound and sponged off with a solution of bichloride of mercury (1 to 2,500). Beyond the immediate neighborhood of the abscess cavity adhesions had not occurred. The intestines were coated with pus and fibrin. This extended along the mesentery to its attachment, and into Douglas's *cul-de-sac* and the small intestines lying upon the opposite side. These were all similarly treated—irrigation, Thiersch's solution. Counter-opening made in the lumbar region, above the crest of the ilium and to the outside and below the kidney leading to the bottom of the abscess. Rubber drainage. Abdominal incision closed above and below with silk sutures, passing through skin and peritonæum. Middle left open. Abscess cavity packed with iodoform gauze. Iodoform gauze packing also carried to the coils of intestines in its immediate neighborhood in small strips, each end coming into the wound, and the rest lying upon and between the infected intestines. Occlusive dressing.

The patient bore the operation fairly well. Abundantly stimulated.

June 2d.—The patient weak. Temperature, 100°; pulse, 80. Small voluntary movement.

3d.—Temperature, 99°; pulse, 80. Very weak, but seems better. Dressed. Packing soaked with pus. Tube working well. Irrigated with Thiersch's solution. Packing replaced in part where soaked with pus (*i. e.*, in the abscess cavity). Tympanites still present. Five movements to-day.

5th.—Second dressing. Gauze filled with pus removed. Irrigated. Packing replaced.

6th.—No thorough irrigation can be made. Tube plugged. Gauze removed. Tube washed out. There is now a distinct cavity leading to the former situation of the appendix. Iliac fascia has separated as a slough. Gauze over the intestines beyond the abscess removed in part. Irrigated, and again packed slightly.

8th.—Dressed again; looks well; all gauze removed from the abdominal cavity. Abscess cavity lightly packed. General condition good.

From present time on till his dismissal, July 17th, nothing more than several sloughs, coming away through the posterior drainage, was observed. It steadily healed, and now, November 22d, he presents himself with a firm cicatrix and no tendency to hernia.

Abscess of the Antrum.—“A new diagnostic sign of abscess of the antrum was brought forward by Dr. T. Heryng, of Warsaw, at the Congress of Otolaryngology, held at Paris during September. The patient is placed in a dark room and his mouth lit up with a small electric lamp, placed above the tongue. Two bright-red spots will then appear below the lower eyelids. If the cavities are filled up with pus, or occupied by a tumor, these red spots will not appear, but, as soon as the pus escapes or the cavity is washed out, the spots again become visible.”—*Medical and Surgical Reporter*.

COMPLICATIONS OCCURRING IN THE CLINICAL HISTORY OF OVARIAN CYSTS.*

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IN the natural history and growth of an ovarian cyst there are impending accidents and complications occurring, rendering diagnosis doubtful and operation questionable, permissible, or imperative.

The development of a cyst is in itself so pronounced a pathological process that it is but reasonable to anticipate danger. To distinguish the symptoms so arising from those of other peritoneal diseases, and to relieve the pain and immediate distress, are questions of material concern to the general practitioner. The eminently practical surgeon may rest content with a surgical diagnosis—that is, that an operation is demanded—but the truly scientific will prefer to thoroughly analyze the clinical features of the case, deduce his pathological problem, and, if an operation is undertaken, his chances of “being surprised” or “meeting with unexpected conditions” are reduced to a minimum. Upon the other hand, by prompt action or judicious conservatism we save the life of our patient.

Experience shows that general and subjective symptoms are almost valueless in the diagnosis of ovarian cysts. The entire group of rational and associate symptoms may be negated by the physical signs. Having determined by physical methods the existence of a cyst, there are events and complications occurring in which, to distinguish the clinical phenomena, we are forced to rely almost entirely upon rational symptoms. In former times, ere yet the eager and expert laparotomist was rife within the land, it was no unusual thing to meet with an ovarian cyst that had seen its days of activity, and for years had remained in a stationary and quiescent state. Such lethargy is unheard of now. Even if Nature were disposed to provide accommodation, the zealous surgeon would break in upon its repose and, like Macbeth, “murder sleep.”

The behavior of an ovarian cyst is not governed by any arbitrary pathological law. From the incipency of its growth, while yet we may mistake it for hydrops follicularis, to its termination it is liable to certain accidents, attributable to the characteristics of the tumor and the peculiarities of the patient.

We may thus divide the complications into two classes: First, those affecting the tumor itself—*viz.*, adhesions, twisting of the pedicle, inflammation, suppuration, rupture, calcification, and others of minor importance. The second class, complications due to the presence of the tumor, but not affecting materially the growth itself. Under this head we have ascites, albuminuria, marasmus, and intestinal obstructions. Other diseases may be met with, but they are so infrequent that they do not merit consideration. Pregnancy is a decided complication, but neither a disease nor the result of the tumor.

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Adhesions.—With the development of a tumor and its infringement upon the limited space of the peritoneal cavity, as a natural consequence, more or less adhesions are formed. We are told by the most acceptable authorities that there are certain outward signs to which we may attach much reliance in the detection and diagnosis of adhesions. The strongest, broadest, longest adhesion presented to us in any given case of ovarian cystoma is that which binds the tumor to the uterus—that is, the pedicle. We are yet incapable of forming any idea of the length and character of the pedicle. Therefore it is not presumable that we can apply the rules given by Frederick Bird and Spencer Wells for the diagnosis of adhesions. The clinical history is, in some measure, a guide, yet I well recall in my own experience a small cyst in a woman who had passed through three distinct attacks of peritonitis. The operation was undertaken with apprehension of formidable adhesions, yet the entire sac came away without the severance of a single band.

Small dermoid cysts are more liable to inflammation, and therefore readily contract adhesions. After tapping, adhesive bands form at the site of operation.

Strangulation of the pedicle, from torsion or otherwise, causes venous stagnation. Mortification would quickly supervene, were it not that adhesions are promptly formed.

Adhesion to a viscus may be in direct apposition. The "immediate" form of Tait, or quite a lengthy, broad, flat, or round band, the "mediate" variety, may attach the cyst. Omental adhesions are by far the most frequent. I have seen the greater omentum attached to the anterior surface, and spread out and universally attached, like a "monk's cowl," over the entire surface of the tumor. While it is not the purpose of this paper to deal with the technique of ovariectomy, I may be pardoned if I emphasize some well-known facts in the management of adhesions. All omental attachments must be ligatured, grasped with pressure forceps on the distal side, and omentum cut through between, care being taken to suture or tie and divide all holes in the omentum; it is obvious such openings are but snares for intestinal obstruction. The freeing of a fettered cyst from a viscus is often a most difficult procedure. Such attachments are usually soft and highly vascular. In their separation, nothing is better than a sponge (Smith), our aim being to sponge or peel the viscus from the tumor, and not the tumor from the viscus.

The hæmorrhage attendant upon the separation of these firm adhesions may be controlled by pressure. If that does not check it, and it is inexpedient to ligate, the salt of iron may be employed. Of course, when practicable, nothing is so secure as a No. $\frac{1}{2}$ silk ligature. Accessible adhesions, even though very extensive, are not considered as seriously complicating the case. It is very much to the contrary when the adhesions are deep down in the pelvis. In their separation we are in constant danger of injuring bowel, bladder, ureter, or some of the large blood-vessels coursing just beneath the peritonæum.

Another accident that may befall an ovarian cyst is rotation of the tumor or torsion of the pedicle.

The "American Journal of the Medical Sciences," Octo-

ber, 1888, contains a truly classical article on "Rotation of Ovarian Tumors," by Mr. Knowsley Thornton.

From this, and the discussion in the British Gynæcological Society on the report of R. T. Smith's rather celebrated case, and from two cases under my own observation, I chiefly gather my information. This accident is met with in every variety of tumors. The only physical condition necessary is a tumor free of adhesions and a pedicle of sufficient length. Rotation of ovarian tumors is found in patients of all ages, yet far more frequently in young women, and quite sufficiently often at the time of menstruation for us to associate that circulatory phenomenon as an active ætiological factor in its production. Many observers have met with a twisted pedicle during pregnancy. Barnes mentions three cases in which rotation was caused by the gravid uterus, which, growing from below, impinged upon the tumor, exerting leverage upon the side, thus causing it to turn around. This explanation is quite satisfactory for those cases associated with pregnancy. Tait very ingeniously accounts for rotation by the passage of fæces causing each time a slight rotation of the tumor. From an analysis of many reported cases, it appears that rotation occurs just as often on the left side. Mr. Tait's theory will answer only for tumors of the right side.

Doran thus explains the accident in one case: "A little artificial distension of the intestine caused it to press against the tumor so as to push its left side backward, stretching and twisting the pedicle." The same author further says: "Still I believe that, as a rule, the twisting of a pedicle is to be explained by the simpler doctrine. The tumor, comparatively free laterally and anteriorly, rotates on its own axis every time that the patient, after walking or lying upon her back, turns around and rests on her side."

Peristaltic action of the bowels has been suggested as a cause of rotation (Stephens).

When strangulation of the circulation takes place in consequence of the twisting of the pedicle, symptoms of varying severity follow. The intensity of the symptoms is governed to a great extent by the degree of strangulation. When there is complete arrest of circulation the symptoms are those of localized peritoneal irritation, abdominal pain and tenderness, quick pulse, fever, and vomiting, and in all cases of sudden strangulation there are grave local and constitutional symptoms described as abdominal shock. Schnrnoff considers suddenly developing ascites as indicative of torsion of the pedicle. The tumor itself undergoes certain changes. Generally it enlarges, becomes tense, hard, more elastic, and less fluctuating.

An ovarian tumor with twisted pedicle may be confounded with a ruptured ectopic gestation sac. In the one case we have to guide us the usual symptoms and signs of pregnancy; in the other they are wanting. In one there was a well-defined tumor, which, with the onset of the symptoms, became more distinct and even more tense than before. In rupture of the tube from pregnancy the tumor is ill-defined and even less distinct than before rupture. In tubal rupture the collapse is decidedly more marked than we meet with in twisted pedicle. The shock from rupture may pass off, but to recur again with the renewal of the hæmorrhage.

If a patient survives the first shock attendant upon rotation of the tumor, the subsequent history is inflammatory. Twisting of the pedicle has been mistaken for intestinal obstruction. The presence of a tumor and symptoms occurring therein, together with the readiness with which the bowels respond to mild laxatives, should eliminate this as a possible error. In consequence of twisting of the pedicle, there is, of course, interference with the circulation, venous stagnation occurs first, arterial pressure continues to force blood into the tumor, rupture of an overcharged vessel follows, and we have hæmorrhage into the cyst. In this way we may account for the clinical phenomena of enlargement and tension of the tumor, and no doubt the great shock observed in these cases is largely, if not entirely, due to the hæmorrhage which generally follows in consequence of the rotation. This question received liberal notice before the British Gynæcological Society. The theory of hæmorrhage as the cause of shock was more acceptable to me than the twisting of a functionless pedicle. With rotation of the cyst and absolute strangulation of the pedicle, as we all have seen, inflammation and gangrene would be looked for as a natural consequence. "It is," says Barnes, "the most common and immediate effect certainly in some cases to lead to gangrene." This is not the opinion of that conscientious observer and eminent ovarian pathologist, Doran, nor does it accord with the experience of operators.

"The steps of the process seem to be gradual rotation without symptoms or serious pathological change, then sudden serious symptoms, with rapid increase in the tumor, then decrease or complete cessation of the growth, followed sooner or later by renewed activity" (Thornton).

The full explanation of all this is, that rotation is a gradual process. When suddenly becoming acute, strangulation with all its clinical phenomena is developed. Now, gangrene does not inevitably occur, as Barnes seems to think, but, as the result of the peritoneal inflammation, adhesions quickly form, and it is now through this adventitious connection that nourishment is to be obtained. The supply of blood being at first only limited in amount, the tumor naturally decreases in size from sheer starvation, and, as we well know from indisputable cases, atrophy and spontaneous cure may in this way take place. Usually, however, adhesions become more numerous, and, later on, the tumor again springs into activity. Under these circumstances the pedicle may atrophy, and even disappear. Such a case would prove highly perplexing to the operator. Bantock, with the voice of an enormous experience, said that a tumor so strangulated would contract adhesions; that he had never seen nor heard of a patient dying from twisted pedicle.

Now, to the practical question, What are we to do when we meet with a twisted pedicle? If we submit our patient to immediate operation, we are compelled to operate with her in the condition of shock, if not collapse. This is a disadvantage no operator cares willingly to take upon himself. Knowing that it is exceptional for the patient to die in the primary stage, is it not prudent to adopt the recommendation of Bantock—that it is unwise to operate during shock? Let us wait for reaction, which we are assured will be established.

In consequence of torsion of the pedicle, we have shown, hæmorrhage frequently occurs. This bleeding is within the cavity of the cyst, due to rupture of a vessel on the inner surface; the strong peritoneal covering is more resistant, and does not yield so readily to blood pressure. Hæmorrhage into the cyst may be due to other causes than twisting of the pedicle. It is unusual for a patient to die from this cause.

In addition to the hæmorrhage and acute symptoms attendant upon strangulation of the pedicle, we may have a condition of equal gravity arising from inflammation and suppuration of the cyst. Peritonitis may assume such an active form that immediate operation would commend itself to us as the only alternative. Suppuration of an ovarian tumor may be due to torsion of the pedicle, to careless and useless tapping, and from traumatism. In suppuration of ovarian cysts the circumstances are desperate, and fully warrant prompt operative interference.

Rupture of the Sac.—This accident sometimes occurs in consequence of over-distension, suppuration, weakening by papillomatous degeneration, or as the result of violence. The symptoms attendant upon this accident depend upon the size, character, and seat of rupture, the nature of the escaping fluid, and the amount of hæmorrhage. If the fluid is non-irritating, and the opening permitting slow leakage, little, if any, reaction may follow. Cysts that have undergone colloid degeneration are prone to rupture. Dr. Mann, in his excellent article on this subject, says: "This colloid material is generally very irritating." The only two cases of ruptured cysts I have seen contained colloid material. In neither of these was rupture attended by symptoms sufficient for diagnosis. One of the cases occurred in the service of Mr. Meredith at the Samaritan Hospital, London. The omentum, intestines, liver, and spleen were all completely covered with colloid. The cyst had evidently ruptured some time before, yet there were no symptoms of peritonitis. The case was an exceedingly ugly one to manage. An abundance of the colloid matter was left behind, though thorough irrigation was employed. A drainage-tube was not used. The patient recovered without a symptom.

Papillomatous growths are favorable sites for rupture. The immediate danger in such cases is not great, because the villi prevent free flow of the fluid. The remote danger is in the infection of the peritoneum. For obvious reasons a monocystic tumor is more liable to rupture than the proliferating, glandular, or multilocular variety. Some authorities maintain that an interligamentary cyst is more liable to rupture than one of true ovarian origin. Any degenerative change in the sac may cause rupture. Dr. Anna Broomall reports at some length a case of rupture due to the violent action of a cathartic. Acute pain, evidences of collapse, and marked change in the form of enlargement are the symptoms pointing to rupture. If the patient does not succumb to the shock of the accident, she is in imminent danger of septic peritonitis. Immediate operation with thorough irrigation and drainage are imperatively demanded.

Calcification.—Calcification is sometimes met with in operations. It is scarcely probable that the condition could be even supposed in differential diagnosis.

Ascites.—At some time in the history of an ovarian cyst it is not unusual to have quite an accumulation of ascitic fluid. It then becomes our duty to “establish direct causal relation between the ascites and the abdominal tumor” (Coe). We must bear in mind that there are other causes of free fluid in the cavity than mere irritation of the peritonæum by malignant growths, or pressure from an abdominal tumor; cardiac, renal, and hepatic diseases all give rise to ascites. We are prone to treat this complication lightly. It is of vital importance and of immense prognostic value that we eliminate every other possible cause of ascites before we attribute it to the pressure of the tumor. Some effort at a differential diagnosis by examination of the fluid has been made. Having excluded the usual causes of ascites, we must bear in mind that it sometimes is an associate symptom of other complications occurring in the cyst. Torsion of the pedicle, as we have shown, setting up peritoneal inflammation, may give rise to a rapid accumulation of ascitic fluid. Rupture of an ovarian cyst would give us a sudden and rapid ascites, in which a diagnosis might prove, under the circumstances, quite bewildering. An exploratory operation would be our only means of definitely determining the origin of the fluid.

Papillary cystomas irritate the peritonæum, consequently their growth is nearly always attended by ascites. Colloid e carcinoma and sarcoma, and in fact all forms of malignant ovarian growths, are so generally associated with ascites that it is considered a leading symptom in their diagnosis. A small tumor with ascites appearing early is strongly presumptive of malignancy. If the ascites is from obstructed circulation, the liquid will be a limpid fluid resembling water, perhaps slightly colored, containing a little albumin but no fibrin, and giving no sediment. If the ascites is from peritoneal inflammation, the liquid will be thinner but never transparent, always cloudy, looking like buttermilk, and smelling like decayed cheese. If the effusion is from simple serous irritation, the liquid will be albuminous, rather clear, though sometimes colored like bile. In the sediment will be found elements of great importance. Large irregular cells may be seen, having a central nucleus, surrounded by a quantity of granulations. The presence of these cells is usually taken as a sign of malignant growth (“Medical Times,” November, 1885).

Before a body of so distinguished specialists as I have the honor of addressing, it would be a consumption of valuable time to enter into the diagnostic methods for the detection of ascites. Its presence as an accompaniment of a tumor does not interfere with operation, provided we may assure ourselves that it is not due to malignant disease (Mann). It is the observation of Coe that in such cases the patients rapidly decline after operation. If ascites is due to cardiac, hepatic, or renal diseases, drainage will be required, the cause still existing. The tax to the patient's vitality will be very trying.

Albuminuria.—Albuminuria is a frequent complication of cystoma. The mere presence of albumin in the urine is no uncommon thing, especially when associated with high specific gravity. In such cases the pressure of the tumor is the cause of the disease, and with its removal the albumi-

nuria also disappears, like, for instance, the albuminuria of pregnancy (Bantock). Albumin in urine of low specific gravity is presumptive evidence of advanced kidney disease, and such patients do not bear an operation well. The function of the kidneys should always be carefully considered before operation.

Correspondence.

LETTER FROM LONDON.

A Successful Case of Cholecystenterostomy.—Myxædema in a Child.—Electrolysis in Stricture of the Urethra.

LONDON, December 7, 1889.

At the last meeting of the Medico-surgical Society Mr. Mayo Robson brought under the notice of the society a successful case of cholecystenterostomy. His patient was a married woman who, in April, 1887, had one ovary removed for pyosalpinx, and in the following January came under his care with acute peritonitis and a swelling in the region of the gall-bladder. Laparotomy was performed, and about eight ounces of fetid pus were removed from the gall-bladder; no gall-stones could be detected. The gall-bladder was stitched to the abdominal wound and drained, and the patient made a good recovery, with a biliary fistula. Although she retained good health during the fifteen months when the fistula was open and discharging the whole of the bile, her condition was a very miserable one, since no apparatus could be made to catch the overflowing fluid when she was walking about. On March 2, 1889, the abdomen was reopened through the old scar in the linea semilunaris. The viscera in the neighborhood were found to be so matted together that it seemed to be impossible to fix the gall-bladder to the duodenum, and, as the hepatic flexure of the colon was conveniently near, the gall-bladder was fixed to it by a double row of chromicized catgut sutures, a free communication being made between the two viscera; and the outer opening (the old fistula) of the gall-bladder was stitched up. In order to guard against accident, a glass drainage-tube was placed in the right kidney pouch and brought out at the lower end of the wound. The outer surface of the gall-bladder evidently gave way to some extent, for bile appeared through the drainage-tube within a few days of the operation, followed shortly by a fecal discharge. The wound granulated, and after a few weeks completely healed, the motions toward the end becoming more and more bile-stained, until in appearance they became quite normal. This is believed to be the first case in which this operation has been undertaken for the cure of biliary fistula. Curiously enough, the only successful case hitherto recorded was also in a woman. It is too early yet to feel any confidence as to the final result in this case, but one can not help feeling a considerable degree of curiosity as to the ultimate effect of pouring the bile into the large intestine. So far as the processes of assimilation and absorption are concerned, one would think the bile would be of no more use than if it were still draining away through a fistula, and yet the patient has remained in a fairly satisfactory condition for six months from the operation.

At a meeting of the Clinical Society lately held, Dr. Abercrombie showed a case of great interest—viz., that of a little girl of fifteen with myxædema. The case seemed to be just the connecting link between myxædema and sporadic cretinism, a demonstration of which was much needed. The report of the committee of this society some two years ago expressed the

opinion that sporadic cretinism did not differ in any essential feature from myxœdema, and this case seemed to afford just the proof of this that was required. According to the mother's statement—and there seemed no reason for disbelieving her—the child was quite healthy until about eight years of age, and she then had an illness which lasted for three years, for which she kept her bed nearly the whole of that time. What the symptoms were the mother could not say, but the doctor had called it Bright's disease, and it was an interesting point that whenever the child was asked what the matter was she said "dropsy of the face." Nothing referable to the throat was noticed during the illness. Since then, the mother stated, the child had not grown and had deteriorated mentally, and, from being quick at her lessons, could now learn nothing and had a very indifferent memory. The mother was most positive that before this illness the child's intellect had been good, and that she had had pretty features and soft silky hair. The child was very stunted, but thick-set, of about the height of a child of nine. Her face was decidedly puffy, especially under the eyes, and her complexion was quite characteristic of myxœdema. The isthmus of the thyreoid could not be felt, but the rings of the trachea were easily palpated. Her hands were square and spade-like, and her skin was rough and her hair coarse. The case was generally accepted by those who examined her at the meeting as an undoubted instance of myxœdema, and it is to be presumed that the primary illness was really some inflammatory condition of the thyreoid gland leading to its atrophy.

Electrolysis as a mode of treating disease does not make rapid progress in public favor over here, but Dr. Steavenson, of St. Bartholomew's Hospital, is one of the few exceptions to the general rule, and has given it an extended trial in cases of stricture of the urethra with Mr. Bruce Clarke. The latter has lately placed on record the results, as far as they are known, in fifty cases; of these, twenty-three patients were known to be well at periods after the operation varying from a year and a half to three years, in two cases no relapse had taken place at the end of four years, while only nine had required subsequent treatment. These results must be considered excellent, but the difficulty is that all persons are not equally competent to undertake the treatment, a fact which probably accounts for the failures of many operators and the consequent disfavor with which this treatment is mostly regarded.

Jaborandi and the Hair.—"Some discussion has taken place as to the use of jaborandi in connection with the hair. The senior surgeon to the London Skin Hospital states that it is a valuable drug in the treatment of diseases of the hair; promotes the growth in certain cases and influences the color in others. He deprecates its use, however, except under medical advice. The President of the British Triehological Association declares that jaborandi, when used with care and discretion externally for certain hair diseases, is undoubtedly a very useful drug, and, in cases which have not submitted to other treatment, must prove beneficial in every respect. Dr. Gurney, of the Hair and Skin Hospital, speaks highly of the drug both as an external and an internal remedy." *British and Colonial Druggist.*

The Native Egyptian as a Subject for Surgical Operation.—"The native Egyptian is an extremely good subject for surgical operation. Clot Bey, the founder of modern medicine in Egypt, has it that 'it requires as much surgery to kill one Egyptian as seven Europeans. In the native hospitals, the man whose thigh has been amputated at two o'clock is sitting up and lively at six.' Shock is almost entirely unknown, and dread of an impending operation quite an exception. In explanation may be noted the resignation inculcated by their religion; the very small proportion of meat in, and the total absence of alcohol from, their diet; and in general their regular, abstemious, out-of-door life."—*Medical and Surgical Reporter.*

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THE EPIDEMIC OF INFLUENZA.

A FORTNIGHT ago it was reported that an epidemic of influenza was prevailing in St. Petersburg and causing great inconvenience to business, especially in factories and other places where manual labor was carried on. On the 12th of December the cable announced that the disease, after having attacked Berlin, had made its appearance in Paris, and that over six hundred of the shopmen in the Magasin du Louvre were suffering from it. London will next be heard from, and then doubtless we shall have it ourselves. It is well to know what to expect.

Epidemic catarrhal fever made its last appearance in England in the winter of 1847-'48, a fact now entirely forgotten, and any correct information as to its characters and the course it took would be most difficult to obtain were it not for the history of the epidemic carefully recorded by the late Dr. Peacock, of St. Thomas's Hospital, London, whose clinical studies in connection with disease of the heart have given him a place among the first of English physicians.*

In the introductory chapters Dr. Peacock informs his readers that there are records from the thirteenth century of the visitations of influenza as an epidemic about ten times in a century. In large towns about half the inhabitants escape the attack, and in London during the last epidemic the mortality was increased by 5,000 deaths in six weeks. Various names have been given to the disease. The name influenza was given to it in Venice and Milan in 1741. In France it is called *grippe*. Old English writers call it *pose*, which signifies a running from the nose, and the word is used in that sense by Chaucer.

The meteorological conditions preceding epidemic visitations are mentioned in vague terms, but sudden and great alternations of temperature have generally been recorded. The disease is described as consisting of three varieties, viz.: Simple catarrhal fever, catarrhal fever with pulmonary complications, and catarrhal fever with abdominal complications. Passing over the simple catarrhal form, we come to Dr. Peacock's severer cases, twenty-eight of which fell under his observation. In eleven cases there was acute or subacute capillary bronchitis, in four bronchitis supervened on tuberculous disease of the lungs, in six there was bronchitis complicated by disease of the heart or aorta, and in seven attacks of pneumonia occurred. Of these, the most serious complication was the capillary bronchitis, which in some of his patients proved fatal. The mortality, placing together all the forms of pulmonary complication,

* "On the Influenza or Epidemic Catarrhal Fever of 1847-'48," by Thomas Beville Peacock, M. D., Physician to the Royal Free Hospital and to the City of London Hospital for Diseases of the Chest. London: Churchill, 1848, pp. 182.

came to nine deaths in forty-eight cases. These were all hospital cases and necessarily of a severe character, the patients having, before admission, been in a low state of health. Dr. Peacock considered that the mortality of the epidemic did not exceed three or four per cent. of the whole number of persons attacked, a very serious mortality, if he is correct in his estimate.

Abdominal complications were present in thirty-one cases out of the seventy-nine. These may be divided into, first, cases characterized by disorder of the gastro-enteric mucous membrane; secondly, those in which the enteric affection was combined with hepatic derangement and a tendency to relapse or to assume a remittent character; and, thirdly, those complicated with rheumatic symptoms. There were only five deaths in the thirty-one abdominal cases.

Dr. Peacock lived long enough to present in a condensed form the result of his observations made forty years ago, in the shape of the article "Influenza" in Quain's "Dictionary of Medicine," which under the present circumstances will be read with great interest.

MINOR PARAGRAPHS.

THE RIVAL FRENCH CANADIAN UNIVERSITIES.

FOR many years the Victoria College has been the principal center for medical education among the French inhabitants of Lower Canada. It has had an honorable career of some forty years and has turned out many graduates. Unfortunately, however, for its religious tone, in the Province of Quebec, where religion and medicine are closely mixed, its degrees have been presented by a university of Protestant tendencies, that of Victoria in Cobourg. To counteract this noxious influence and to enable the faithful to be certain that their doctors prescribed medicines of the proper ecclesiastical flavor, a rival school was established which granted degrees from the fine old Catholic University of Laval in Quebec. A bitter struggle ensued and many were dragged into the strife without any knowledge of the questions at issue. Politics has crept in; one school is tainted with liberalism, the other leans toward the old Tory party. The unprejudiced looker-on would find it hard to say what it was all about. A few months ago an amalgamation was arranged and conflicting interests were duly regarded. But the feelings of the students had not been considered. Since the session opened a continuous state of war has existed, and, according to a daily paper, one of the professors recently felt called upon to illustrate his lecture with a loaded revolver. Among the teachers there is no better feeling than among the students. After bitter fighting among themselves an appeal to Rome has been decided upon, and all parties have agreed to abide by the arbitration of His Holiness. In the mean time the students, who have paid their fees, complain with some justice that while all the squabbling is going on there is no teaching done. A number of them, at a meeting recently held, have decided upon asking the law courts to issue a mandamus to compel the faculty to give the instruction set forth in the annual announcement.

HOW "FAITH-CURE" MAY SPREAD DISEASE.

CERTAIN ignorant Scandinavians in Brooklyn and vicinity have adopted, in a very fatalistic way, a doctrine of healing by faith and prayer. They do not believe in medicine or physicians, and they will not call in the aid of the latter, except in

cases where death is impending. One of them said recently: "I want a physician to come and see my child in order to comply with the law, which says that a physician should see the case within twenty-four hours before death; the law gives me a certificate of death if I do this." The women who have adopted this strange fanaticism have united themselves into an order which they call the "Lodge of Faith," which nurses the sick free of charge and abjures the employment of any medicines. It is believed that these nursing sisters have been the means of spreading scarlet fever and diphtheria, going as they do, with a perfect abandon and disregard of earthly consequences, from one house to another.

CYANIDE OF ZINC AND MERCURY AS AN ANTISEPTIC DRESSING.

IN the "Lancet" for November 9th Sir Joseph Lister publishes a paper describing his efforts to obtain a more suitable antiseptic application than bichloride of mercury. He first employed a gauze charged with a solution of corrosive sublimate in blood-serum; but serum was not always obtainable, and the gauze was harsh and not very absorbent. Next, sal alembroth (chloride of ammonium and bichloride of mercury) dissolved in serum was employed; this seemed more efficient as an antiseptic than the bichloride of mercury alone, and was less irritating; but the salt was so soluble that the serous discharge from the wound would wash it out, concentrating it near the edge of the dressing and irritating the skin by the presence of the large amount of the salt. Cyanide of mercury was next employed, at the suggestion of Mr. Martindale. Mr. Cheyne found that while its germicidal effect was small, its inhibitory power was about 1 in 10,000. This salt was very irritating, however, so the less soluble cyanide of mercury and zinc was tried; in the proportion of 1 to 800 it prevented putrefaction, but it seemed to be an irritating application, and was used with the cyanide of mercury. Biniodide of mercury was an efficient antiseptic, especially if associated with starch; but, like the sal alembroth, it was too irritating. The cyanide of zinc and mercury was again tried, this time unmixed with the cyanide of mercury, the gauze being moistened with a corrosive-sublimate solution of 1 to 4,000, and with starch as a medium for incorporating the salt with gauze, a small quantity of sulphate of potassium being employed to prevent pastiness of the mixture. An antiseptic dressing was thus obtained that has proved very effective in the surgical wards of King's College Hospital. Before using gauze prepared in this way it should be moistened with a 1-to-4,000 bichloride-of-mercury solution.

THE "NEW EVANGELISTS."

THE faith-healing believers who style themselves the "New Evangelists," and profess to be willing to let their children, sick with scarlet fever or other contagious diseases, go without medical attendance, and to avoid all sanitary precautions, are found to be amenable to law. Three different acts appear to meet the case of this kind of cruelty; first, there are the special enactments for the protection of minors; secondly, the Penal Code has an "omnibus section" which makes it a misdemeanor to fail to provide food and medicine for a sick dependent person; and, thirdly, a sanitary ordinance, also of an "omnibus" character, against those who through negligence contribute to the spread of communicable disease. The second of these legal provisions, that of the Penal Code, is that which the prosecuting officers will prefer to try under in most cases. These facts were brought out by Dr. J. C. Bierwirth, physician to the Brooklyn Society for the Prevention of Cruelty to Chil-

dren, in a paper read before the Kings County Medical Association on December 13th. The "New Evangelists" seem to be ignorant and misguided rather than lawless, and as soon as they have been convinced that the law requires that their children shall have medical attendance and that seclusion must be observed in scarlet fever and the like, they will cease to be troublesome.

THE CHARITY HOSPITAL ALUMNI SOCIETY.

At the meeting of the Medical Society of the Alumni of Charity Hospital, held on the evening of December 10th, Dr. A. T. Muzzy read a very interesting paper on "The Prevention of Ophthalmia Neonatorum." Dr. Joseph O'Dwyer presented some new laryngeal tubes, which are shorter than his former models and of much larger caliber—in fact, giving a passage very little smaller than the trachea itself, thus facilitating the removal of membrane, mucus, etc. Another modification consists in having the collar at the top of the tube binged to the shaft in front, so that removal is easily performed with the finger. The collar, which is held in place by springs, may be lifted readily, forming a ring into which the tip of the finger is inserted and the tube readily withdrawn without the use of instruments.

PRIVATE LUNATIC ASYLUMS.

The New York State Commission in Lunacy has taken a very commendable step in the adoption of the following: "*Resolved*, That hereafter no license for the establishment and keeping of an asylum or institution for the care, treatment, or custody of the insane or persons of unsound mind, for compensation or hire, shall be granted except to a duly qualified medical practitioner of recognized professional skill and standing, who is a graduate of a legally incorporated medical college and has had actual experience in the care and treatment of the insane."

ONE OF THE DANGERS OF THE NURSING-BOTTLE.

An infant, four months old, was lately reported to have been choked to death by swallowing the rubber nipple of a nursing-bottle. The insecure way in which nipples are often attached to the bottle, as well as the custom of leaving the infant alone with a bottle to quiet it, gives grounds for expecting the greater frequency of such accidents.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 17, 1889:

DISEASES.	Week ending Dec. 10.		Week ending Dec. 17.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	17	5	21	5
Scarlet fever.....	71	6	71	5
Cerebro-spinal meningitis....	2	2	1	1
Measles.....	46	5	70	2
Diphtheria.....	94	26	109	30
Varicella.....	5	0	1	0

A New Hospital for Pittsburgh.—By the will of the recently deceased John A. Shoenberger, an iron master of Pittsburgh, a bequest of \$800,000 is made for a Shoenberger Memorial Hospital, that will occupy a site of eight acres of land next to the Alleghany Cemetery.

An Epidemic of Scarlet Fever in an Orphan Asylum.—The secretary of the Ohio State Board of Health has just in-

vestigated an epidemic of scarlet fever in the Soldiers' and Sailors' Orphans Home at Xenia, and he reports that the hospital is unfit for use, its wards are crowded, and diphtheria and scarlet-fever patients are kept in rooms adjacent to wards occupied by persons with minor ailments. His report was condemnatory of the management.

The Hoagland Laboratory.—In the winter course at this laboratory, beginning on December 20th, the three departments of bacteriology, physiology, and histology will be in operation. A fee of \$15.00 will be charged in each of the two former and \$20.00 in the last. The charge for animals is not included in the fee. The library will receive over thirty standard foreign journals.

Virchow's "Cellular Pathology."—The "British Medical Journal" states that Professor Virchow continues to work diligently upon the new edition of his "Cellular Pathology," and that he expects to have it completed by the time that the International Congress meets at Berlin.

Change of Address.—Dr. O. J. D. Hughes (Meriden, Conn.), to No. 88 East Main Street.

Army Intelligence.—*Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 1 to December 14, 1889*

WOLVERTON, WILLIAM D., Major and Surgeon, Fort Douglas, Utah. Leave of absence for one month, to take effect on or about December 18, 1889, is hereby granted, with permission to apply at Headquarters, Division of the Missouri, for an extension of seven days. Par. 2, S. O. 114, Department of the Platte, November 30, 1889.

GARDINER, JOHN DE B. W., Captain and Assistant Surgeon, will, by direction of the Secretary of War, be relieved from duty at Fort Reno, Indian Territory, upon the arrival at that post of James C. Merrill, Captain and Assistant Surgeon, and will report in person to the commanding officer, Fort Supply, Indian Territory, for duty at that post. Par. 8, S. O. 279, A. G. O., November 30, 1889.

MCCAW, WALTER D., Captain and Assistant Surgeon, Fort McPherson, Georgia. Leave of absence for fifteen days is hereby granted. Par. 3, S. O. 276, Division of the Atlantic, December 3, 1889.

HALL, JOHN D., Major and Surgeon. Leave of absence for ten days, to take effect upon being relieved from duty at Fort Niagara, N. Y., is granted. Par. 11, S. O. 285, A. G. O., Washington, December 7, 1889.

CARTER, EDWARD C., Captain and Assistant Surgeon, will, by direction of the Secretary of War, be relieved from duty at Willett's Point, N. Y., upon the arrival at that station of EWEN, CLARENCE, Major and Surgeon, and will then proceed to Fort Walla Walla, Washington, and report in person to the commanding officer of that post for duty, reporting also by letter to the commanding general, Department of the Columbia.

Naval Intelligence.—*Official List of Changes in the Medical Corps of the United States Navy for the two weeks ending December 14, 1889:*

NEILSON, J. L., Surgeon. Detached from the U. S. Steamer New Hampshire and ordered to the U. S. Steamer Portsmouth.

BEYER, H. G., Passed Assistant Surgeon. Detached from the U. S. Steamer Portsmouth and placed on waiting orders.

SIEGFRIED, C. A., Surgeon. Detached from the Naval Station, New London, Conn., and ordered to the New Hampshire.

HALL, JOHN H., Passed Assistant Surgeon. Ordered to the Naval Station, New London, Conn.

- KITE, I. W., Assistant Surgeon. Detached from the Naval Hospital, Philadelphia, Pa., and ordered to the Naval Hospital, Pensacola, Fla.
- ROSS, J. W., Surgeon. Detached from the Naval Hospital, Pensacola, Fla., and placed on waiting orders.
- ROSS, J. W., Surgeon. Detached from the Navy Yard, Pensacola, Fla., and placed on waiting orders.
- KITE, I. W., Assistant Surgeon. Detached from Naval Hospital, Philadelphia, Pa., and ordered to the Navy Yard, Pensacola, Fla.
- ROGERS, B. F., Surgeon. Ordered to special duty at Norfolk, Va.
- LEACH, PHILIP, Passed Assistant Surgeon. Ordered to duty at the Naval Academy, Annapolis, Md.

Society Meetings for the Coming Week:

- MONDAY, *December 23d*: Medical Society of the County of New York; Boston Society for Medical Improvement; Lawrence, Mass., Medical Club (private); Cambridge, Mass., Society for Medical Improvement; Baltimore Medical Association.
- TUESDAY, *December 24th*: New York Academy of Medicine (Section in Laryngology and Rhinology); New York Dermatological Society (private); Buffalo Obstetrical Society (private); Medical Society of the County of Lewis (quarterly), N. Y.
- WEDNESDAY, *December 25th*: New York Surgical Society; New York Pathological Society; American Microscopical Society of the City of New York; Medical Society of the County of Albany; Philadelphia County Medical Society.
- THURSDAY, *December 26th*: New York Academy of Medicine (Section in Obstetrics and Diseases of Women and Children); New York Orthopædic Society; Brooklyn Pathological Society; Roxbury, Mass., Society for Medical Improvement (private).
- FRIDAY, *December 27th*: Yorkville Medical Association (private); New York Society of German Physicians; New York Clinical Society (private); Philadelphia Clinical Society; Philadelphia Laryngological Society.
- SATURDAY, *December 28th*: New York Medical and Surgical Society (private).

Obituaries.

Charles Henry Nichols, M. D., LL. D.—On Monday, December 16th, Dr. Nichols, the superintendent of the Bloomingdale Asylum, died at his post in that institution, in the sixtieth year of his age. His malady was malignant disease of the liver, with secondary involvement of the peritonæum.

Dr. Nichols was a native of Maine, and received his medical education in New York and Philadelphia, taking his degree from the University of Pennsylvania in 1843. He began his asylum service in 1847, at Utica, N. Y., and was appointed physician to the Bloomingdale Asylum in 1849, but resigned the office in 1852. Under appointment by President Fillmore he superintended the construction of the Government Hospital for the Insane, at Washington, and took charge of the institution when it was ready for the reception of patients. After many years of devotion to the Washington asylum he was recalled to Bloomingdale as medical superintendent. In both asylums, and in all the affairs of his life, his course was marked by intelligent and zealous devotion to the progress of his art and to the most judicious conduct of the work committed to him. Personally, Dr. Nichols

was plain and ardent of speech, but gentle and genial to a degree that impressed everybody with the purity and loyalty of his character.

Thomas B. Harvey, M. D., LL. D., of Indianapolis, dean of the faculty of the Indiana Medical College, died on Thursday, the 5th inst., within a few hours after an attack of apoplexy that overwhelmed him while he was delivering a lecture to the class. The deceased, who was in his sixty-third year, was a native of Ohio and a graduate of the Medical College of Ohio. Most of his professional life was spent in Indiana, and a great part of it in Indianapolis, where he acquired a wide reputation as a physician and as a teacher of medicine.

Letters to the Editor.

DANGER IN THE RHEOSTAT.

1706 WALNUT STREET, PHILADELPHIA, *December 12, 1889.*

To the Editor of the New York Medical Journal:

SIR: Dr. Tod Gilliam's letter in the last number of the Journal contains a most timely warning, now that the use of relatively heavy currents in medical work is so common, but the terrifying and mortifying accident of unwillingly shocking a patient with three hundred and fifty milliamperes when but seventy were desired should not condemn the *form* of this controller. I do not know who made the "hydro-aluminium" rheostat used by him, but whoever was responsible for it made a grave error. It is essential that a water-current controller should have plates that are non-corrodible under the continuous use of heavy currents, as electrolysis always occurs in it, and the small space between the upper portions of the plates is an invitation to such accidents. To select aluminium as possessing such properties is sheer nonsense. A single use of the contrivance with two hundred milliamperes would coat the positive plate with oxide to be added to by each subsequent use. The carbon controller possesses no such disadvantage, and, if the upper portions of the plates are made impervious to water by boiling in paraffin, their action is perfect and constant. Some complaints of a slight shock of five or ten milliamperes at the start, after repeated use, are doubtless due to upward creeping of the water in the absence of this coating.

My own controller, constructed of graphite on a porcelain disc, needs only slow movement to insure against any kind of shock. It has been given to the profession without restriction or patents, and I still warmly recommend its use in preference to cell-selectors.

G. BETTON MASSEY, M. D.

144 MAIN STREET, WEST, JACKSON, MICH., *December 14, 1889.*

To the Editor of the New York Medical Journal:

SIR: The "Danger in the Rheostat," as reported by Dr. Gilliam, in your issue of December 7th, is undoubtedly of more frequent occurrence than is reported in the journals. It is true that the accidents that occur are not always quite so bad as the one that happened in Dr. Gilliam's experience, but, nevertheless, the numerous unpleasant shocks that patients are continually receiving because we can not always control the current of electricity makes this one therapeutic agent less frequently used than it would be otherwise. The "collector" is denounced for its want of a nicety of gradation of current. The hydro-aluminium rheostat supplies the gradation of current, but, on account of the electrolytic action on the plates, this style of graduate is not safe to use for fear of an experience more or less like that referred to.

But, in this connection, I am glad of the opportunity to call attention to a little device which gives me *absolute* and *perfect* control of the current at all times and under all circumstances. This device can be used either with a battery or on any incandescent-light circuit with perfect safety. You are *never* in the direct circuit; but it is so arranged that you can shunt any fractional part or number of milliamperes without shock to your patient. From the same device you can operate your cauteries and have the faradaic current. The "Gish ideal rheostat," to which I refer, is a handsome little box, about eight inches square, and contains but one continuous bare wire, so arranged that it gives us absolute control of the current. The rheostat must be seen to be appreciated. F. W. MAIN, M. D.

Proceedings of Societies.

NEW YORK SURGICAL SOCIETY.

Meeting of November 13, 1889.

The President, Dr. LEWIS A. STIMSON, in the Chair.

Fracture of the Skull.—Dr. B. FARQUHAR CURTIS presented a boy, nine years of age, upon whom he had operated for very extensive fracture of the skull. The patient, while leaning over a railing, had lost his balance and had plunged head foremost down two flights of stairs, a distance of twenty-five or thirty feet. The fall had been unbroken until near the floor, when the patient's head had struck the back of a bench, splitting off the woodwork. The accident occurred on September 10, 1889, at 10.30 A. M. The boy was picked up unconscious and carried to the hospital. There was profound shock, the pupils were dilated, the surface was cold, the pulse feeble and very variable in rapidity, averaging about 120, respirations 33, temperature 98.4° F. in the rectum; there was also a "cephalic cry" at frequent intervals. Stimulants were administered subcutaneously and by enemata. It was deemed advisable to wait for reaction before operating. About 1.15 P. M. the patient began to show signs of reaction, but at 8 P. M. he was still in a condition of coma. Examination of the head when the boy was received at the hospital showed an area, extending from the right side of the occipital protuberance to within an inch of the left eyebrow and about three fourths of an inch in width, in which the soft tissues seemed to have lost their support, and there was a decided depression at each end of this area. Bony crepitus was obtained in several places throughout this area. On September 11th, at 9 A. M., the patient's general condition was good, but he was still entirely unconscious. The pupils were contracted, but disturbing the patient dilated them. Every few minutes there came short periods of restlessness and the cephalic cry. Muscular movements were less active on the left side than on the right, but there was disease of the left hip joint. It was decided to operate first on the posterior depression on the right side of the head. The scalp having been shaved and carefully cleansed, the patient was anesthetized with chloroform. A curved incision was made from a point two inches above the root of the right ear and carried with the convexity upward to about an inch and a quarter from the sagittal suture, then downward two inches and a half to the right of the occipital protuberance. The tissues were divided down to the bone, the flap being reflected downward. As the dissection had only disclosed the lower part of the depressed fragment, a second incision was made running from the highest point of the former in-

cision transversely toward the left parietal eminence for a distance of two inches.

It was evident that there were two main fissures, one running transversely across the vertex from ear to ear, the other obliquely from the right parietal eminence to the left frontal eminence, both gaping about an eighth of an inch. There were numerous shorter fissures, so that every portion of the bone of the vertex was easily movable. Under the flap there was an oval piece of bone, two inches by three, lying behind the transverse fissure just mentioned and a little to the left of the median line. The anterior edge of this fragment was driven under the bone just in front. A groove was made along the border of overlapping bone with a Hey's saw and the bone removed with a rongeur up to this groove. The depressed bone was then pried up and removed. The dura pulsated so feebly that a clot was suspected and an exploratory incision was made, but no clot was found, and the incision was closed with a single suture. Two small pieces of bone were replaced on the dura, and the scalp flap was then brought into position and sutured, a small drainage-tube being used. On account of the magnitude of the operation already performed and the condition of the patient, it was decided to defer exploration of the anterior depression. The periods of restlessness occurred at longer intervals, and the cephalic cry disappeared after the operation. Muscular co-ordination was perfectly re-established. On the third day the patient had become quiet and tried to talk, but was unable to articulate. On the fifth day there were three very severe syncope attacks, probably from over-stimulation. On the ninth day after the operation the patient was very much improved and was able to play with toys. He still had periods of restlessness and was unable to articulate distinctly. The wound had healed by first intention except at the point of junction of the transverse with the curved incision, where it had a sloughy appearance, with some sero-purulent discharge. On the eleventh day a second operation was done. The patient was etherized, and Broca's center was located as follows: A line was indicated from the tip of the mastoid process of the left temporal bone to the alveolar process of the superior maxillary. Parallel to this another line was indicated from the external angle of the orbit to a point 5 cm. posteriorly. The greater depression lay just above this point, and around this as a center a horse-shoe-shaped incision was made with its convexity upward, one end of the incision being behind and above the external angle of the orbit, the other end two inches and a half posterior to this. The incision was carried down to the bone and the flap dissected downward. A fissure was found corresponding nearly to the coronal suture and gaping an eighth of an inch. The entire frontal bone was found depressed, so that it lay below the level of the parietal bone. The depressed edge was removed with the rongeur, increasing the space between the bones to a third of an inch for two inches. This was done because the frontal bone could not be elevated, for it returned to its former position immediately. In this area a clot was found of about the size of a 25-cent piece lying over Broca's center, which was cleaned away, and the dura was found slightly pulsating. The dura was not opened. The wound was closed and an antiseptic dressing applied. Improvement in speech was noted on the day after the operation, and the patient's condition had since been one of continued improvement. At the present time the wound presented four narrow granulating surfaces of varying sizes; in the posterior one there was a sinus leading down to dead bone—the last fragment of the grafts, which did not take. The patient talked fairly well, his intelligence was fair, and co-ordination was perfect.

The Surgical Treatment of Appendicitis.—Dr. CHARLES MCBURNEY read a paper on this subject (see page 676). He also

presented four patients from whom he had removed the vermiform appendix.

Dr. A. G. GERSTER said that he had listened with a great deal of pleasure to Dr. McBurney's extremely interesting report of the excellent work which he had done in a heretofore dark region of surgery. Just such observations and results were necessary to demonstrate incontrovertibly those views which had been contested by the speaker and others for a long time. He had, however, been thoroughly converted to the views expressed in the paper. He believed that a great deal of light had been shed on the subject which was extremely valuable and stimulating to further efforts in this special field. The thanks of the profession and of humanity were due to the men who achieved such results in spite of professional opinion in opposition to the feasibility of the procedure.

Dr. ROBERT ABBE said that, in reference to the case cited in which there had been a fall of temperature while the inflammatory process was progressing, it had occurred to him, and he presumed to others, that there was often a lull in the severity of the symptoms on the second or third day which was rapidly succeeded by progressive peritonitis, and that these were almost uniformly fatal cases. This lull was often misleading as to the real condition of the patient and the progress of the attack, and was, in his opinion, the opportunity for safe surgical interference.

Dr. GERSTER said that there was a symptom observed in other cases where pus or septic material was causing high tension. High fever existed, and when rupture occurred there was a simultaneous lull in the symptoms. In osteomyelitis, where the periosteum was subject to great tension, high temperature and serious symptoms existed while this tension lasted. When perforation of the periosteum took place there was a lull, the symptoms reappearing when an extra-osseous abscess formed.

The PRESIDENT showed an appendix removed in a case of recurrent appendicitis which had come under his notice some two weeks before. The patient was a sailor, twenty-six years of age, who had been admitted to the Chambers Street Hospital on the 25th of October. He had had at that time a great deal of pain in the right iliac fossa and had required morphine. The speaker saw him the day after, when his temperature was 100.5°; there was some rigidity of the abdominal muscles of the right side with tympanitic resonance, but no tumor could be felt. There was marked tenderness on pressure midway between the umbilicus and the right superior spine of the ilium. There had been a previous attack fourteen months before, and another at some period about two years before that. The man at first declined operative interference, but the next day consented to it, although his symptoms then seemed less marked. The speaker was assisted at the operation by Dr. McBurney. After the incision was made the intestine was drawn aside and the caput coli raised, but there was no sign of the appendix. On handling the lower end of the ileum and its mesentery, close to its attachment, some thickening was found. On tearing apart some tissues of new formation on the lower side of the mesentery, the appendix was exposed. The appendix, which was closely adherent to the mesentery, was then detached and tied off at its base with a catgut ligature and removed. The microscopic examination had shown the tissues of the organ to be studded with small round cells, the structure proper of the mucous membrane being entirely lost. Within the organ there were only two or three small concretions. No pus was found and the adhesions which bound the appendix down were evidently such as had resulted from previous attacks.

Dr. R. F. WEN thought that Dr. McBurney had confirmed a statement that had been made previously—namely, that the dan-

ger of the disease was greater in many instances than the danger from the operation. Among the cleveu cases in which he had operated during the past year he had encountered three in which the abscess was deeply situated in the abdomen, and in which the parietal peritonæum was not involved—in other words, where the general peritoneal cavity had to be opened before the pent-up pus could be liberated. All the others had been met with later in the course of the disease, with the general abdominal cavity shut off by more or less parietal adhesion. After touching briefly on the history of several of these latter cases of appendicitis, the speaker narrated the details of the case of a young medical man who had been seized on a Saturday evening with pain in the iliac fossa and sent for him on the next morning. He found tenderness in the right iliac region which was severe enough to prevent manipulation and examination. Opiates were administered. The temperature, which had been 102°, began to fall, and by the evening of the second day it was only a little above 100°. This led to the hope that delay might be safe, but during the night the patient suffered excessive pain with elevation of temperature, although the next morning the temperature had fallen again. The patient was now considered to be in a critical condition, and an operation was performed fifty-two hours after the beginning of the pain. It was difficult to keep the bowels within the cavity during the operation. When the omentum was raised and the appendix exposed, three or four ounces of pus escaped. The organ was found to be perforated and to contain one solid fecal concretion. The peritoneal cavity, which had become somewhat smeared with the pus of the abscess, was washed out with a salicylic-acid solution and everything possible was done, but the end was a fatal one.

Two other cases were described, in one of which laparotomy with ablation of the appendix had been performed with success within fifteen hours of the inception of the disease. The third patient, operated on at the end of fifty hours, was relieved, but succumbed on the fifth day, from uræmic convulsions. Another case, which had made a profound impression upon him at a time when he had formulated the opinion that it was well to operate early in this disease, was that of a nervous and impressive young woman who was suffering from pain in the right iliac fossa. He had made, under ether, prior to an intended operation, a thorough examination, and, although the belly was unusually lax, had found nothing but some thickening of the right broad ligament. The patient had then, on the speaker's withdrawal from the case, passed into the hands of a gynecologist, who diagnosed an inflammatory process in the right broad ligament. Under treatment this young woman had recovered. He had also seen three cases in which the origin of the tumor might have led to its being considered perityphlitic, although it was from a lesion of the gall-bladder. In two of them the disease had been proved to exist, and in the third it could fairly be assumed to have existed. In the first instance the incision, just above the ilium, had given vent to a quantity of orange-colored pus. The patient's condition forbade an extended operation, and no surprise was excited when the post-mortem showed a rupture of the gall-bladder from multiple calculi. The second case was that of a man who had suffered attacks of hepatic colic, but in whom the tumor was found below the umbilicus and to its right, in the situation of a perityphlitic abscess. This was incised about the third day, letting out about three or four ounces of laudable pus. In this case the appendix had not been found, and really no attempt had been made to find it, for fear of disturbing the limiting adhesions. The fatal result of what was apparently a promising case showed a rupture of the gall-bladder. In the third case the tumor had been higher up and close to the gall-bladder, but this patient had recovered.

Dr. F. LANGE said that he had experienced considerable difficulty with one case in finding the appendix. After some tedious search he had found it lying across the cæcum and to the right. The patient had been presented at a previous meeting.

Dr. WEIR said that, though the appendix was occasionally found bound down by a webbing of adhesions after repeated inflammatory attacks, yet it was in the majority of cases found free and swollen, looking somewhat like the erect penis of an infant.

Dr. C. K. BRIDDON had seen many cases in which the organ was found lying over the upper part of the pelvis, and one in which it occupied the floor of the cavity. He should consider the region just above Poupert's ligament as rather low. He thought that, from the fact of its being often found over the brim of the pelvis, an examination *per rectum* would throw some light on the cases.

Dr. McBURNEY said that it seemed to him a matter of small moment in what direction the appendix pointed, or how long it was. What was really important was to locate, if possible, the situation of the inflamed portion, and, as this was almost invariably near the point of attachment of the appendix to the cæcum, and the perforation generally occurred within an inch of this point, examination *per rectum* was of little value. But by the method of examination of which he had spoken it would always be possible to discriminate these cases from peritonitis due to other causes and from inflammatory conditions of the pelvic organs in women.

Dr. BRIDDON said that, whether the method he had suggested revealed the trouble or not, it would not influence him in regard to operating.

Dr. FRANK HARTLEY presented a patient and reported the history of his case. (See p. 684.)

Officers for the Ensuing Year were elected as follows: President, Dr. C. K. Briddon; vice-president, Dr. Robert Abbe; secretary, Dr. Frank Hartley.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION IN MEDICINE.

Meeting of November 15, 1889.

The President, Dr. LOMBE ATTHILL, in the Chair.

Morphinism.—Dr. FOOT drew attention to the increasing prevalence of the use of the hypodermic syringe as a medium for the vicious introduction of morphine into the system. Morphinism (a word introduced by Levinstein) was, in some parts of Europe, at present almost a matter of fashion, gifts of handsome syringes in silver cases were exchanged on festive occasions, and reciprocal injections of morphine made on favorable opportunities. The subject was one of special interest to medical men, because of the number of their colleagues who had fallen victims to it. Some said this was a just retribution upon those who were responsible for the practice. Dr. Foot thought it more charitable to attribute the habit to (1) the relief of pain, (2) insomnia, (3) melancholia, (4) curiosity, or (5) imitation. A receptivity for morphine was not possessed by every one; all its effects were unpleasant to many. Few morphinists were satisfied with less than three grains in the twenty-four hours; many used more than ten times that amount. The diagnosis or detection of the morphine habit was discussed, and stress laid upon the peculiar untrustworthiness of the patient's own statements as to the amount or frequency of the dose. The prognosis in morphinism was not at all favorable; the probability of a cure might be estimated by attention to the following points: the duration of the habit, the persistence or not of the exciting cause, the physical and nervous constitution of the patient.

Relapses were very frequent; successful treatment, unless under the most favorable circumstances, was hardly possible in the patient's home.

As to the treatment, emancipation from morphine slavery was unattainable by voluntary effort. The process of cure, or of demorphinization, required more moral and physical courage than was at the disposal of a morphine habitué. The treatment was considered under the heads of the *deceptive* plan, the *substitution* plan, the *tapering-off* plan, and the *abrupt withdrawal* plan. The two first methods were not to be seriously considered in the treatment of confirmed morphinism. The tapering-off plan involved prolonged misery during the weaning process. The abrupt plan was frequently followed by the dangerous group of *Abstinenzsymptome*. A modification of the two latter methods might be adopted—the complete withdrawal of the morphine, not abruptly, but in from six to twelve days. The fœtus *in utero* felt the demorphinization of the mother, and also, when separated by birth from a morphinist mother, exhibited reactionary symptoms such as prolonged insomnia. In some cases morphinism need not be interfered with, in others it was even beneficial to acquire the habit. Allusion was made to the occurrence of morphinomania in animals.

Dr. MACSWINEY recalled a case recorded in Anthony Todd Thompson's text-book on materia medica, a laudanum-drinker who, though he was in the habit of taking a wineglassful at a time, was cured by the gradual elimination or deprivation process. A quart-bottleful was procured, and for every glass of the drug taken out a glass of water was substituted, with complete success.

Dr. FALKINER mentioned the case of a school-teacher whom he had seen take five ounces of laudanum at a draught, and who afterward gave up the habit.

Dr. EUSTACE advocated the abrupt and sudden total withdrawal of the drug in morphinism, and of the spirits in alcoholism, as the best and most scientific treatment. As a rule, only a partial cure was effected, for sooner or later temptation led to a relapse.

The PRESIDENT'S experience led him to advocate gradually diminishing doses.

Dr. WALTER G. SMITH said it was difficult, in regarding the action of drugs of a certain class on the higher parts of our nervous system, to restrict consideration to any particular drug, such as morphine, without bringing into consideration also the effects of other drugs of allied action. Thus there were two groups which might be arranged in the ascending scale of action—one, the alkaloids, and the other the members of the fatty series, including chloral, ether, alcohol, etc. Dr. Foot had adverted to this class distinction, indicating that the prolonged use of one of the members of the fatty series was liable to induce general tissue change and lead to death, whereas members of the alkaloid series affected chiefly the higher or psychical, emotional, and intellectual nerve centers, causing death by their action on the respiratory and cardiac centers. With regard to treatment, he did not think any amount of discomfort entailed on the patient was a good reason for objecting to the sudden total withdrawal of the drug.

Dr. JAMES LITTLE thought that Dr. Enstace had sufficiently answered his own recommendation by giving an account of his own sufferings. Even though the ultimate good of the patient was in view, he did not believe in disregarding the horrible torture, the intolerable suffering produced by sudden total withdrawal; and, on the contrary, he thought the nervous system of the patient never recovered entirely from the wreck of misery and wretchedness produced by such treatment. For his own part, he had seen patients get on very well by gradually stopping the drug.

Dr. Foot said he thought Dr. Eustace had given the keynote to the discussion. There were two classes of cases to be considered. Thus, Charcot drew a distinction between what he called morphinism and morphinomania, the former being the state of a person who had recently acquired a taste for morphine, whether from temptation, imitation, curiosity, or for relief of pain; and the latter the condition of mental deterioration only known to exist in those with such a craving, insufferable hunger that destroyed body and soul, they would jump into hell to get their morphine. The morphinomaniac in his periods of satisfaction would bewail his condition, but would otherwise have no real desire to be cured, and would seize the first opportunity of getting morphine. He must therefore accordingly be treated as a lunatic. On the other hand, the morphinist wished to be cured and would assist in carrying out the graduated, or tapering-off plan, which was the advisable treatment in such a case, for experience showed that total withdrawal was followed by what the Germans called "*Abstinenzsymptome*," or reactionary effects, which had sometimes proved fatal.

ROYAL ACADEMY OF MEDICINE IN IRELAND.

SECTION IN SURGERY.

Meeting of November 8, 1889.

The President, Mr. AUSTIN MELDON, in the Chair.

The Operative Treatment of Tubercular Disease of the Knee Joint.—Mr. THOMSON read a paper on the operative treatment of tubercular disease of the knee joint. Having referred specially to the infective character of tuberculosis, he pointed out that where the condition of the synovial membrane demanded operation the disease was rarely so limited as to be removed by simple erosion. In some cases where the cartilages were apparently quite healthy, the bone was found on section to be diseased, and yet this was the sort of case which the thoroughgoing eraser would regard as typical for his treatment. The securing of movement after erosion was being abandoned, and that being so, ankylosis could be more surely and quickly secured between two level bone surfaces, as in excision, than by the opposition of two irregular cartilage-covered surfaces. Shortening sometimes occurred where no operation was done, so that this objection could not be fairly argued as a result of excision. If the disease was extensive enough to lead them to the epiphysary line, they must go there even at the risk of shortening. He maintained that excision was safer and more satisfactory than erosion. He had excised the knee seventeen times without a death; but in two of his cases, before adopting the combined methods of fixing by Thornley Stoker's dowels, and the use of his own hoop-iron splint, he had to amputate. In his hospital in fifty successive cases of excision of the knee joint there had only been one death—a result which left little to be desired.

Mr. TOBIN thought that Mr. Thomson had not indicated clearly what cases ought to be submitted to operation, nor had he suggested an answer to the difficult question, "Shall I operate at once, or wait, and, if I wait, how long?" It was important to determine whether an operation should be performed at once in every case diagnosed as tubercular synovitis, or whether it would be desirable to wait till the bones were attacked, or still longer, till suppuration had set in. For his own part, he would wait longer than Mr. Thomson seemed to approve, having regard to the fact that by the use of Thomas's splint, complete rest, and change of air, he had seen great cures effected. Moreover, he did not see that a resected knee had much advantage over an amputated leg supported by the modern improved artificial appliances. He sometimes found that while

a straight limb was obtained for three or four years, it afterward got crooked.

Sir W. STOKES indorsed Mr. Thomson's views as to the superiority of excision of the knee over the operation of erosion or arthrectomy. As to the time for operation, it was impossible to lay down a rule, but, speaking from his own tolerably large experience of the operation, he held that as soon as the surgeon satisfied himself he had to deal with tuberculous disease of the joint, the earlier the operation was performed the better was likely to be the result. He repudiated the statement put forward in more than one hand-book of operative surgery that knee-joint resection would soon be an operation merely of history. On the contrary, the operation never enjoyed a greater reputation than at present, and he believed its reputation was likely to increase. He preferred a splint which he himself had devised to Mr. Thomson's, as insuring absolute fixation and rigidity of the limb, and also as rendering unnecessary the dowsing as recommended by Mr. Thornley Stoker.

Mr. J. K. BARTON, referring to the question raised by Mr. Tobin of the general advisability of the operation, mentioned the case of a housemaid upon whom excision had been performed, and who discharged her duties a whole year without her mistress being aware that there had been anything the matter with her, while he submitted that had she suffered amputation, the mistress could not possibly have remained ignorant of the fact.

Mr. TOBIN intervened to deny that he had questioned the advisability of excision, an operation which he frequently practiced himself, and said his point was as to the cases suitable for that operation.

Mr. BARTON said the real point was as to the procedure, and he had no doubt there were cases of disease of the synovial membrane in which erosion might be profitably performed instead of excision; but erosion could not be favorably compared with, or take the place of, excision in cases of tubercular disease.

Mr. LENTAIGNE concurred with Sir W. Stokes that excision was the best treatment for tubercular disease of the knee joint, and ought to be performed as soon as the disease was recognized; and if the limb became crooked afterward it was the fault either of the surgeon or the patient, and very often of both.

Mr. BENNETT questioned the dictum that excision was the proper and right treatment once the diagnosis was tubercular disease, and contended that Mr. Thomson had not committed himself to such a proposition once he admitted that he dealt with excision in reference to hospital patients and not the treatment of patients of the upper classes. Indeed, Mr. Holmes's challenge had never been accepted as to any case of excision having been done in private practice. (Mr. Thomson: "I have had one.") The vast majority of such cases in the upper classes were treated without excision. Patients had recovered from white swelling of the knee with all the due care and rest that could be given in private practice. But where tubercular disease was running riot there was no longer the alternative of palliative treatment, and it then became a choice between excision and amputation. At the same time he had seen cases of recovery take place even after suppuration had set in.

Mr. SWAN remarked that the spontaneous cure alluded to by Mr. Bennett was the established practice of a great many eminent London surgeons, including Howard Marsh and Owen, the latter of whom had extensive practice with children, and believed in letting the joint suppurate; but the average period of cure was three years—a longer time than could be afforded for hospital patients.

Mr. FRANKS took up Mr. Holmes's challenge and said he had

himself operated by excision for tubercular disease of the joint in the case of a female patient with success. Patients could not be kept in hospitals for years awaiting the result of spontaneous cure when, probably, as good a result could be had in a few months.

Mr. THORNLEY STOKER held that, whereas excision was an operation of established repute, that of erosion was on its trial, and accordingly no decisive opinion could be expressed about it. For the past two years he had been anxiously watching to get a suitable case for erosion, but in every instance where he commenced the operation he had been obliged to complete it by carrying out excision.

Mr. CORLEY said, as regarded when to operate and what cases to operate on, there was no test but experience, nor could the surgeon tell, until after the joint was opened and a prepared section placed under the microscope, whether the disease was tuberculous or not.

Mr. WHEELER held that where excision was necessary it should be done early. The bones should be always cut. He had himself performed the operation of excision of the knee joint in two private cases, and now one of the patients was able to walk nine miles at a stretch.

Mr. THOMSON had advisedly narrowed the scope of his communication by omitting conditions anterior or preliminary to the question of excision *versus* erosion, two operations which he found pitted against each other. As to the time to operate, the sooner the better, once the surgeon saw distinct pulpy degeneration of the synovial membrane.

Miscellany.

Report of the Sanitary Committee on the Manure Question, with Recommendations.*—It is only necessary, we trust, in order to emphasize the sanitary importance of the manure question in this city, to invite the attention of the commissioners to the large number of complaints that are made by the people of all stations of life, calling the attention of this department to the annoyance to them from the foul odors caused by the present method of handling manure. All of these people assert that they are seriously annoyed by the odors—some, of course, more so than others. It is maintained by many that these odors enter their living, sleeping, and eating rooms, interfering with rest, causing nausea, loss of appetite, and consequently leading to depreciation of the vital forces that depend for their proper vigor on physical and mental rest, good appetite, and good digestion. Reputable physicians complain frequently in similar terms in behalf of patients, not infrequently using vigorous methods of expression as indicative of disgust or distrust on their part with the seeming indifference of the sanitary authorities of the city. While it is true that much has been done already to lessen the burden of the people in this respect, still complaints of a similar tenor are made continually, and therefore it appears to be high time for the department to take such action as will give to the people, if it be possible, freedom from the annoyances and ill results caused by the foul and offensive odors that arise from the present method of handling stable manure. The foul and offensive odors resulting from other classes of business carried on in the city are subjected to rigid control and strict surveillance by the department when their source is ascertained. In the manure business, however, in which no question can arise as to the genuine cause of foul odors, or that their effects on the human system are parallel with the results of foul odors from other causes, no such comparatively decisive steps have yet been taken to abate or abolish them.

For the practical consideration of the problems that arise in con-

nection with the disposal of the manure made within the city of New York, and the relief of the people of the city from the foul and offensive odors arising from it, it seems well to divide the interests directly associated with the production of it into three distinct classes—viz., (1) the producers of manure; (2) the manure merchants, or "riders" of manure; (3) the consumers of manure.

The direct producers of this product are horses, of course. Of these there are in round numbers about 60,000 below One Hundred and Thirty-fifth Street. It is estimated that a horse will drop about 15 pounds of manure *per diem* on the stable premises, which will make the entire daily product of manure about 900,000 pounds, or 450 tons. Estimating each load of manure "ridden" from the stables at about 1,000 pounds weight, we find that on this basis about 900 loads daily are removed from the city. The fact is, however, that the nearer amount is about 1,200 loads daily, irrespective of the weight of a single load.

The close association of the owners of horses with these animals is the excuse for making now a change of statement by considering the owners themselves as the practical producers of this product. The owners of these animals can be separated into certain definite and well-recognized divisions, for the purposes of the remarks that are to follow: (1) Persons of leisure, to whom the horses are but another means of pleasure and enjoyment; (2) persons engaged in business in which these animals are employed as an aid, convenience, or necessity; (3) the poor men who, by thrift alone, secure to themselves the ownership of one or two horses, upon the proceeds of the direct use of which they themselves and their families depend for livelihood and support. The horses of the first class are kept in private stables and in first-class boarding-stables, the expense in the latter instance being from twenty-five to thirty-five dollars a month for each horse. Those of the second class are also kept, as a rule, in boarding-stables, but of a less pretentious character than the former. In this instance the expense varies from twenty to thirty dollars a month for each horse. The horses of the third class are kept either on the premises occupied by the owners and their families for living purposes, or in stables of a humbler class, opening into alleys, lanes, and yards. From fourteen to twenty dollars a month for each horse is a fair estimate of the cost of stabling in the places last mentioned. The manure is removed from all the stables in the same manner—that is, in carts, at specified intervals, for a stipulated compensation. The stipulation prices for removal vary from one to twelve dollars *per annum* for each horse. In a fair percentage of instances (twenty-five) the manure produced by the humblest class of owners is removed by the manure "riders" without charge.

It is of special interest at this time to note the fact that, when the horses are stabled on the living premises of the owner, the wagons, carts, etc., are commonly parked in the street in front of the premises; but when the horses are aggregated in a common stable located elsewhere, the vehicles are then parked in the stable-yard and in the lane or alley adjoining the stable; sometimes, of course, in the street, as before. The sanitary advantages of the aggregation method of stabling horses are obvious at a glance, for by this plan the number of stables in the city are lessened, and their proximity to dwellings is reduced to a minimum; the parking of vehicles in the streets in front of human habitations is much diminished, together with the nuisances dependent on their presence in the streets.

The manure merchants or "riders" of manure are, as a rule, most estimable and law-abiding citizens. In many instances the amount of money invested, as well as the energy and enterprise displayed by these men, is calculated to entitle them to the respect of those engaged in other and more fastidious occupations. It is the custom of those engaged in riding manure to make such terms with the producer as are mutual, as is elsewhere shown. The frequency of the removal of manure depends on the amount made and the ability to properly store it on the premises, etc., together with the interruptions dependent on the exigencies of the weather. It is important to notice the manner of removal. It is forked from the manure vault or pit to the floor of the stable, or the sidewalk, or into the cart, as best suits the convenience or fancy of the laborer engaged in the work. The time occupied in the transfer from the pit to the cart is from thirty to forty-five minutes for each load. Always one and sometimes two laborers are engaged with each cart, the number depending, of course, on the difficulties of load-

* Read before the Section in Public Health and Hygiene of the New York Academy of Medicine, December 6, 1889.

ing, as modified by the size, shape, and situation of the manure vault. The loads of manure are drawn through the streets to a "dump" at the river front, where the manure is transferred, directly or indirectly, to a scow for removal from the city.

The markedly unsavory nuisances that are unavoidably associated now with this branch of the business are caused, first, by the storage and banding of loose manure on the premises, causing odors in and about the stable building which taint the textile fabrics of the carriages and of the occupants of the stables, and it is asserted by some that even the varnish of the carriages is tarnished and often permanently disfigured. The escape of these offensive odors into the external air annoys the passers-by and also the occupants of the contiguous dwellings. Second, the streets are littered by the falling of manure and straw from the carts while *en route* to the "dump," and often the offensive odors of manure are plainly discernible in the streets through which the loaded carts are passing. Third, the dumping or unloading of the manure at the docks is complained of by many as being offensive to the sense of smell and by all as offensive to sight. The collection and the removal of manure to the scows that transport it from the city requires, as before remarked, a considerable outlay of money, together with much energy and enterprise. This employment is furnished to about four hundred laborers (396). These men receive each about \$1.75 *per diem* for services. Nearly three hundred carts (296) of all sizes, mostly single, are employed for the purpose. Each horse and cart hauls from two to six loads a day, the number depending on the distance drawn and the convenience of handling. The great majority (226) of the carts haul five loads in a day. It now becomes a comparatively easy matter to estimate approximately the amount invested in this business directly, together with the amount paid for labor to establish the practical application of it. The four hundred (396) laborers earn about \$1.75 each *per diem*, which earning (about \$207,900 *per annum*) forms the principal item, no doubt, of the annual support of three times that number of persons. The three hundred (292) horses can be safely estimated as costing \$200 each, or a total of \$60,000. The carts (296) cost about \$113 each, making a total of \$33,448 for these vehicles. Three hundred (292) sets of harness, estimated at \$38 per set, add \$11,400 more to the outlay. The expense of shoeing the horses, wear and tear of the vehicles and harness, etc., can not be less than \$7,500 or \$8,000 *per annum* additional—making a grand total of about \$320,000, including the yearly wages paid for help. If to this amount be now added the yearly expense incurred for the leases of premises for "dumps" and for emergency storage, this total will be increased much more. The expense of scows, if they be owned by the manure merchants, or the expense of the hire of them if they be not, becomes a fixed matter under any system of action, since they are loaded to the fullest capacity at all times. It is reported that from twenty-four to forty-eight hours elapse from the time of the removal of the manure from the stables of the city before it is sold by the "rider," or stored by him outside the city limits for the purpose of "ripening" for sale. Long Island, New Jersey, and Westchester County furnish the principal markets of disposal.

The consumers of this manure are those who till the soil, and they reside principally in the parts of the country contiguous to the city, as just indicated. They receive the product in the form of bales, or in the loose state, as the occasion demands or their fancy directs. As yet, but a comparatively small amount of manure is baled.

In considering the question of the policy of baling manure, it seems proper that the subject should be divided into three distinct parts: 1, the baling itself; 2, the handling after baling; 3, the effect of baling on the fertilizing qualities of manure. The last of these divisions will be considered first. This division directly interests the consumers of manure. They will naturally inquire as to the effect of baling on the fertilizing powers of the product. If it shall appear that manure, when baled, is as serviceable as when unbaled, then, certainly, no reasonable objections to baling can be urged by the tillers of the soil; on the contrary, they should welcome the change as one that facilitates their labor, and consequently adds to their personal comfort. As to the effects of baling on the fertilizing properties, it is not necessary to theorize at all, since the science of chemistry can settle the fact beyond dispute.

The following report of the comparative analysis of baled and unbaled manure, made by Mr. E. W. Martin, Chemist of the Board, speaks not only for itself, but also for the committee, regarding the matter:

NEW YORK, June 15, 1889.

E. H. JANES, M. D., *Assistant Sanitary Superintendent*:

SIR: I have the honor to make the following report with regard to changes in the commercial value of horse manure through baling the same. The method of analysis employed was that recommended by the Association of Official Agricultural Chemists, Washington, 1888.

First Set of Experiments.—One bale of manure, put up at the stable of the New York Cab Company, Forty-fifth Street and Fifth Avenue, and a quantity of the same manure, unbaled, were sent to the disinfecting station at the foot of East Sixteenth Street on March 28, 1889, and kept under cover.

Samples of the above specified manure were taken, and analyzed by Assistant Chemist Beebe on May 3, 1889, with the following results:

Analysis number.	Character of sample.	Ammonia on dry basis.	Total phosphoric acid on dry basis.	Insoluble phosphoric acid on dry basis.	Moisture.	Remarks.
		Per ct.	Per ct.	Per ct.		
5,867	Unbaled manure.	2.55	1.54	0.26	51.73	Very slightly molded. Completely molded; "fire-fanged."
5,869	Baled manure...	2.44	1.40	0.25	50.82	

Second Set of Experiments.—Two bales of manure, put up at the same place as in the first experiment, together with loose manure, were taken to the disinfecting station on May 8, 1889, and treated as follows:

Loose manure inside.

One bale exposed to weather outside.

One bale inside.

Samples of the above specified manure were taken, and analyzed by Assistant Chemist Beebe on June 4, 1889, with the following results:

Analysis number.	Character of sample.	Ammonia on dry basis.	Total phosphoric acid on dry basis.	Insoluble phosphoric acid on dry basis.	Moisture.	Remarks.
		Per ct.	Per ct.	Per ct.		
5,891	Loose manure inside.	2.72	1.68	0.21	49.64	Molded.
5,892	Bale exposed outside.	3.10	1.83	0.21	44.80	Molded completely from center out—still warm.
5,893	Bale inside.	3.07	1.64	0.17	31.17	Molded completely; cold.

From the above-given results, I am of the opinion that the baling of horse manure and keeping in bales for thirty days does not injure its commercial value, nor is there reason to believe that baling for a longer period than this will lessen the commercial value.

Respectfully submitted,

[Signed.] EDWARD W. MARTIN,
Chemist.

This report has been examined by so eminent an authority on chemical and sanitary matters as Professor Charles F. Chandler, of Columbia College, and a former president of this department. In a communication to me regarding this report, Professor Chandler says:

SCHOOL OF MINES, COLUMBIA COLLEGE,
Corner Forty-ninth Street and Fourth Avenue,
NEW YORK, August 22, 1889.

DEAR DR. BRYANT: The manure question has always been one which has been a source of a great deal of discussion and difficulty. It came up every year while I was connected with the Health Department, and no plan was ever proposed that gave satisfaction to all concerned. When the subject of baling manure was first suggested it struck me favorably, and I visited the yard on the East River where the process was being carried on, and it seemed to leave nothing to be desired in the way of simplifying the handling of the material. It was suggested by some parties that the fertilizing properties of the manure would be injured by the process, but I was satisfied at once, without making any analysis, that this could not be true. The manure was not wet enough to have anything squeezed out of it in the process of baling, consequently it could lose nothing in this way, and there was no more reason

for its losing valuable fertilizing constituents in haling than in rotting. I am glad to find that the very complete analyses which have been made by Mr. Edward W. Martin, your chemist, and his assistant, Mr. Beebe, entirely confirm this opinion, and show that the manure suffers no loss by the baling process. There is no reason why it should. I can not think of any suggestion to make beyond what I have said in favor of haling. I hope you will insist upon this process; it is the only radical improvement that I can think of in this connection.

Very respectfully yours,

[Signed,]

C. F. CHANDLER.

Professor Maurice Perkins, Professor of Chemistry of Union College at Schenectady, a member of the State Board of Health, in a verbal communication to me, confirms all the above-named gentlemen have said. It is surely a supererogation to seek further facts in the matter in face of the positive statements of these eminent and distinguished scientific gentlemen.

The molded or "fire-fanged" appearance of baled manure naturally excites doubt in the minds of the consumers as to the integrity of the fertilizing qualities. This doubt, too, is settled by the analysis of "fire-fanged" manure made by Mr. Martin, as will be seen in his report. It is the opinion of the Committee that no good reason exists why the consumers of manure should object more to the baling of manure than the consumers of hay object to the baling of that product. In fact, it appears to the Committee that the consumers ought to hail such a measure with delight for the following reasons: 1. Baled manure is more easily and rapidly handled than the unhaled, and the handling is attended with no offensive odors or defilement of vehicles. 2. The fertilizing properties are not impaired by haling (see Martin's report), and, if necessary, it can be unhaled and "ripened" or combined with other fertilizing agents more quickly, conveniently, and economically than when in the loose state. 3. Farmers who market their produce in the city can return home with a load of baled manure without causing any offense, and with a practical financial advantage to themselves.

Second: Handling after Baling.—This division of the subject directly concerns the manure merchants or "riders" of manure. It is perfectly fair to assume that these people, like other business people, will be pleased with a proposition that will enable them to attend to their business in a shorter time, and at less expense to themselves, than is now done, provided the market value of their labor be not impaired by the method adopted. That the fertilizing properties of manure are not impaired by baling is already irrevocably proved; and that the market value depends almost entirely on these properties can not be denied. If, now, the properties be preserved, and at the same time the manure be presented to the consumer in a convenient, practical, and inoffensive form, then indeed should the market value be increased; certainly it can not be diminished.

The business can be done in a shorter time for the following reasons: 1. A given amount of baled manure can be handled more quickly than the same amount of unhaled manure, and without any offense. The same is true, also, of baled and unhaled hay. 2. Heavier loads of baled manure can be drawn during the same length of time than of unhaled manure. Twice as much (weight) haled as unhaled hay can be easily drawn at a load; and there is no good reason for the belief that practically the same relation will not hold good in connection with manure. 3. As no offense is created by the drawing of baled manure, the time of drawing can be modified to conform to the recognized customs of other businesses.

Less Expense to Themselves.—1. If it be true that a greater amount of haled than unhaled manure can be handled in the same length of time, it follows logically that a lesser number of horses, carts, etc., will be required to accomplish the given purpose; consequently the expense of handling will be proportionately reduced. 2. If it be true that heavier loads of baled than unhaled manure can be drawn in the same length of time, then it follows undeniably that the expense of hauling is lessened proportionately to the amount drawn. 3. If the relation between baled and unhaled hay, as regards the amount drawn in a given time, exists also between baled and unhaled manure, the expense of "riding" manure will be reduced at least one half by the baling process.

If, now, attention be directed to the amount invested by the manure

merchants in horses, carts, harness, wear and tear, etc., it is apparent that the gain for them, even with a less favorable estimate, will be immense, if compared with the amount now invested. It is well to notice also the probable fact that with this system bales of manure, like those of hay, can be marketed directly, thus doing away with the special cars, scows, sloops, dumps, etc., which are necessary on account of the offensive nature of the product while in the loose or unhaled state. These results will lessen the outlay of the manure merchants, thereby enabling them in turn to lighten the expense of it, as related to the producer and the consumer.

The baling itself affects those engaged in all phases of the manure business, and concerns indirectly also all classes of the community. It directly affects the pockets of the former, and indirectly concerns the senses of the latter, and, as a rule, the effect on the pockets is productive of the more potent results of the two. The securing of the apparatus to hale manure properly can not in any way seriously incommode the first two divisions of persons mentioned in the beginning of this report, viz.:

"Persons of leisure and of business, who own horses as aids to pleasure and profit." I will not, therefore, question the sincerity of their good citizenship by a further consideration of themselves in connection with this point; they should be staunch supporters of whatever plan is shown to be productive of the greatest good to the greatest number.

How will the persons of the third division be affected by baling manure? It will be remembered that to this class belong:

"The poor men, to whom the proceeds of the use of one or two horses are the principal means of support of themselves and families." To expect each of them to make the outlay necessary to bale the manure of the horse or horses that belong to each is absurd and impossible of accomplishment; and, if it were possible, the requirement of it would be as unwise and unjust as it is burdensome, and as inconsistent as it is unnecessary. These persons should be permitted to put the manure in cheap barrels or other proper receptacles, in which it should be removed to the dump by the manure merchants, and the receptacles returned by them to the producer. The cost to this class of producers need be but little, if any, in excess for each horse of the price of the barrels—about \$3.65 *per annum*, or one cent each day. It may be said that the manure merchant will not take the manure thus harreled and return the barrels without extra expense to the producer. Let us look for a moment at this phase of the subject. The producer will purchase and fill the barrels. A barrel will cost not to exceed ten cents; it will contain the "droppings" of one horse for from seven to ten days, equal to about 100 to 150 pounds, according to the size of the barrel, including the stable straw that will naturally enter into it. The producer will willingly give the manure to the "rider" and will pay him from five to ten cents for the barrel when returned. It is shown that the average number of loads of unhaled manure drawn daily is five, each weighing from 1,000 to 1,500 pounds. We will select the lesser estimate. Each load will then represent ten barrels of manure, each barrel containing 100 pounds. At this figure the "rider" receives 5,000 pounds of manure daily from the producers for nothing, and is paid for returned barrels \$2.50 to \$5 each day.

It is estimated that the gain in time of loading barreled manure over forking loose manure into the cart will be substantially offset by the greater length of time taken to empty the manure from the barrels at the dump. Surely the manure merchants, who will gain so much from handling baled manure, can well afford to remove the barreled manure, even if they themselves furnished the barrels and return them. It is an enterprise, surely, that many, independent of the manure merchants, would grasp at once, to say nothing of the farmers, who would return from the city with manure after having marketed their products. There is no doubt that many worthy and enterprising persons would appear at once who would gladly accept the opportunity to remove the manure inoffensively for the modest remuneration that would follow. Not a thing is wasted in this city, except by those who do not need it, or those who do not appreciate its value. The same enterprise that gathers rags from the gutters will satisfactorily solve this element of the subject. In view of these facts, and the demand of the people of this city for relief from the foul and offensive odors that constantly

arise as the result of the present method of handling, the committee respectfully recommend that the Sanitary Code be so amended as to conform to the spirit and purpose of the following resolution:

Resolved, That on and after the fifteenth day of May, 1890, it shall not be lawful to remove stable manure from any stable or premises in the built-up portion of the city of New York, or to cart the same within the city limits, without a permit from the Health Department, unless the manure be pressed and baled as required by the Board of Health, and be properly covered while being removed and carted, or be inclosed in tightly-covered barrels or receptacles approved by the Board of Health, so as to prevent the escape of all offensive odors and liquid matter.

Respectfully submitted,
[Signed.] JOSEPH D. BRYANT, M. D., *Chairman*,
WILLIAM M. SMITH, M. D.

Mortality in Cities in the United States.—The following table represents the mortality in the cities named, as reported to Dr. John B. Hamilton, Surgeon-General of the Marine-Hospital Service, and published in the abstract of sanitary reports received by him during the week ending December 13th:

CITIES.	Week ending—	Estimated population.	Total deaths from all causes.	DEATHS FROM—															
				Cholera.	Yellow fever.	Small-pox.	Varicella.	Typhus fever.	Enteric fever.	Sarlet fever.	Diphtheria.	Measles.	Whooping-cough.						
New York, N. Y.	Dec. 7.	1,591,955	661					7	6	19	5	11							
Chicago, Ill.	Oct. 5.	1,100,000	356					9	1	26		2							
Chicago, Ill.	Oct. 12.	1,100,000	334					10	3	24		1							
Chicago, Ill.	Oct. 19.	1,100,000	309					14	3	28		1							
Chicago, Ill.	Oct. 26.	1,100,000	300					21	3	24		2							
Chicago, Ill.	Nov. 2.	1,100,000	284					14	3	30		1							
Chicago, Ill.	Nov. 9.	1,100,000	340					24		27									
Chicago, Ill.	Nov. 16.	1,100,000	286					16	4	22									
Chicago, Ill.	Nov. 23.	1,100,000	256					10	1	26		1							
Chicago, Ill.	Nov. 30.	1,100,000	256					4	3	20									
Chicago, Ill.	Dec. 7.	1,100,000	325					8	4	30									
Philadelphia, Pa.	Dec. 7.	1,040,245	352					14	5	20		2							
Brooklyn, N. Y.	Dec. 7.	843,602	310					3	4	28		1							
Baltimore, Md.	Dec. 7.	500,343	182					7	1	4		3							
St. Louis, Mo.	Nov. 30.	450,000	118					3	4	3									
St. Louis, Mo.	Dec. 7.	450,000	130					8	4	8									
Cincinnati, Ohio.	Dec. 7.	325,000	110					3		6	2	1							
San Francisco, Cal.	Dec. 1.	300,000	117					3		1									
New Orleans, La.	Nov. 30.	254,000	121					3		2									
Detroit, Mich.	Nov. 30.	250,000	73					2	1	7		1							
Pittsburgh, Pa.	Dec. 7.	230,000	66					2	2	6									
Louisville, Ky.	Nov. 30.	227,000	50					2	1	1									
Kansas City, Mo.	Dec. 7.	180,000	20							3									
Denver, Col.	Nov. 29.	135,000	43					3		2									
Denver, Col.	Dec. 6.	135,000	33					4	1	1									
Providence, R. I.	Dec. 7.	127,000	55					2		2									
Indianapolis, Ind.	Dec. 6.	124,450	25					1		5									
Richmond, Va.	Dec. 2.	100,000	31																
Richmond, Va.	Dec. 9.	100,000	30					2		2									
Toledo, Ohio	Dec. 6.	89,000	23					1		5									
Fall River, Mass.	Dec. 7.	69,000	30					1				1							
Nashville, Tenn.	Dec. 7.	63,531	25					1											
Charleston, S. C.	Dec. 7.	60,145	27																
Lynn, Mass.	Dec. 7.	53,000	12																
Manchester, N. H.	Dec. 7.	42,000	16					1		1									
Portland, Me.	Dec. 7.	42,000	16					1		1									
Galveston, Texas	Nov. 22.	40,000	16					1											
San Diego, Cal.	Nov. 27.	32,000	5																
Yonkers, N. Y.	Dec. 6.	31,000	5																
Altoona, Pa.	Nov. 30.	30,000	3					1											
Altoona, Pa.	Dec. 7.	30,000	4					1											
Binghamton, N. Y.	Dec. 7.	30,000	3																
Canton, Ohio	Nov. 29.	30,000	4																
Auburn, N. Y.	Dec. 7.	26,000	15									2							
Newport, R. I.	Dec. 5.	22,000	2																
Newton, Mass.	Dec. 7.	21,553	7					1											
Rock Island, Ill.	Dec. 1.	16,000	2																
Rock Island, Ill.	Dec. 8.	16,000	3									1							
Pensacola, Fla.	Dec. 7.	15,000	6																

The New York Academy of Medicine.—At the next meeting of the Section in Obstetrics and Gynecology, on Thursday evening, the 26th inst., Dr. A. Brothers will read a paper on "The Subsequent Behavior of Cases of Extra-uterine Pregnancy treated by Electricity."

At the next meeting of the Section in Laryngology and Rhinology, on Friday evening, the 27th inst., Dr. W. H. Daly, of Pittsburgh, Pa., will read a paper on "The Relation of Naso-pharyngeal Disorders to Deafness."

California Tokay Wine.—In the discussion of an interesting and suggestive paper on "Infantile Therapeutics," by Dr. John A. Larrabee, of Louisville, read at the recent meeting of the Mississippi Valley Medical Association, and published in the December number of the

"New England Medical Monthly," Dr. Love, of St. Louis, said: "In the matter of stimulation I have found Tokay wine, or Hungarian Tokay wine, to be very valuable, but it has been high-priced—from \$3 to \$5 a bottle—so high as to be almost prohibitory, and beyond the reach of the majority of families. There was presented to me within the last year a bottle of Royal Tokay wine, a California production, bottled by the California Vintage Company, of 21 Park Place, New York city, at \$1.50 a bottle, which gives exceptionally satisfactory results, and is just as good as any Tokay I ever used; therefore I think it is sheer nonsense to give families who can not afford it a prescription for a three- or five-dollar wine."

ANSWERS TO CORRESPONDENTS.

No. 304.—From the facts given in your letter, it is not likely that the trouble is due to the psoriasis; it probably depends on some affection of the central nervous system. Treatment is not very promising. A course of general tonics, especially the use of arsenic, seems indicated. It would be well to protect the nails with rubber or leather cots, and to apply to them some stimulating ointment, such as one of tar or of sulphur.

To Contributors and Correspondents.—The attention of all who purpose favoring us with communications is respectfully called to the following:

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

Original Communications.

THE RADICAL CURE
OF VARICOSE VEINS OF THE LEG
BY MULTIPLE LIGATION.*

By CHARLES PHELPS, M. D.,

ATTENDING SURGEON TO ST. VINCENT'S AND TO BELLEVUE HOSPITALS.

SOME years ago my attention was specially directed to the dangers and inconveniences of varicose veins of the leg. In the course of examinations for civil appointment I had been very frequently compelled to reject candidates for this form of disease who were in every other respect physically well fitted for the position to which they aspired, and often when the varicosities were comparatively unimportant from any other point of view than this.

The frequency of crural varices has not, so far as I know, been made the subject of statistical research. That it is of great frequency is evident, not only to those who have had occasion to submit large bodies of men to physical examination, but to all those who have had under observation the inmates of almshouses and hospitals for the care of chronic diseases. Perhaps no surgical disability will be found to exist more frequently unless it be chronic ulcer or hæmorrhoidal tumors. They are of acknowledged frequency in women and in those whose circulation is enfeebled by age or general debility. In my own experience they have occurred even oftener in young men, and especially in those of vigorous physique. No cause is more frequently operative than occupations like those of carrying-porters, truck-drivers, or car-drivers, which involve prolonged and severe strain upon the crural muscles by which the blood from the intermuscular veins is constantly forced into the superficial vessels. Car-drivers, I am told, habitually suffer from this condition, and the statement is confirmed by my own observation.

Contrary to the opinion of Mr. Callender,† that these varices are "not serious in their consequences," I have found that they do often involve the patient in serious and even fatal danger. How serious and dangerous these ordinary varicose veins may become is unhappily exemplified in more than exceptional instances. Since January, 1888, within less than two years, five cases of hæmorrhage from rupture of crural veins have occurred within my immediate knowledge or observation. One of these patients died in the ambulance upon arrival at St. Vincent's Hospital; another was brought into the ward at Bellevue in a moribund condition, and was resuscitated by transfusion, which resulted subsequently in gangrene and amputation of the arm. Two others reached the hospital in a condition of collapse, and could only be restored by hypodermic injections of digitalis and whisky. In the fifth case, occurring in the practice of Dr. S. G. Cook, profuse and repeated hæmorrhages were controlled with the greatest difficulty. And these

were all varices of ordinary size. Within the same length of time I have operated in some score of cases where varices were so large and the tegumentary coverings so thin that, beyond the danger of practically spontaneous rupture, the patient was in constant and imminent danger of profuse or even fatal hæmorrhage from any trivial wound or contusion to which every person is at any moment liable. In several cases in which great pools of blood existed, formed by the aggregation of largely dilated and tortuous subcutaneous veins, I doubt not that death would result from a wound almost as speedily as from opening an artery of the first class. The profusion and force of the hæmorrhage may be estimated from that which often occurs from pricking some small vein in the course of the operation to be hereafter described; and it is to be remembered that neither prompt nor intelligent aid can be expected in a majority of cases of accidental hæmorrhage. The statement repeatedly made in surgical text-books, that placing the patient on his back and raising his leg will stop the flow of blood, is untrue and misleading, and liable to occasion a fatal result.

Aside from this consideration of actual danger to life, there are numerous cases in which the inconveniences from ulcer, eczema, œdema, or weakness of a varicose limb seriously embarrass the patient. Every practitioner is familiar with them. I may mention as an extreme instance a case at Bellevue when I was *interne* in which recurrent and intractable ulcerations, confining the patient to bed and hospital during years of the best portion of his life, finally led him to beg for amputation. This was eventually conceded, and, in the hands of a careful and accomplished surgeon, death resulted from septicæmia. But, short of such despair and lamentable result, patients suffering from varices are often enough absolutely unfitted for the active pursuits of life.

It seems, therefore, that the cure of this condition is more important than we have been taught to believe. I have also found it quite practicable when sufficiently thorough and effective measures are employed.

In cases where radical cure has been heretofore attempted the operative methods resorted to have been sometimes objectionable and almost always ineffective. Operation by ligation, if done at all, has been infrequent, and the ligatures have been placed at few and distant points. As in all other forms of operation recommended for radical cure, the design has been, even in the longest veins, only to effect obliteration at one or two selected points. There has been an apparent fear of purulent phlebitis, although veins have always been freely ligatured whenever their incidental division has made it necessary. Even when pyæmia was regarded as a legitimate accident of surgical interference it was not often directly chargeable to ligation applied to the veins themselves. With usual antiseptic precautions or without them, there seems no good reason why free ligation of veins should involve more danger when made with a direct purpose than when made incidentally in the course of other operations—*e. g.*, in the removal of large and vascular tumors where a great number of venous ligatures have always to be applied.

* Read before the Society of the Alumni of Bellevue Hospital, November 6, 1889.

† Holmes's "Surgery," vol. iii, p. 384.

The frequent anastomoses of superficial veins, not only among themselves, but with others situated in the deeper structures, and often imperceptible even upon careful examination, is the fact upon which I have based my opinion of the necessity of occluding the vein not only at occasional points, but throughout the whole length of every trunk involved. If there were no such anastomoses, obliteration of the vein at a single point high up in its course would serve to close it in its whole length below, and, whether excision, chemical coagulation, pressure, or the ligature were resorted to, would be a mere matter of convenience, modified by the operator's view of their comparative safety and efficiency. But, with constant intervenal communications, and many of unknown size and importance, it seems obvious that occlusion must be made at many points to insure probable stability of clot. In this view excision and chemical coagulation are, of course, impracticable. Aside from any question of purulent phlebitis, here, as elsewhere, the ligature is undoubtedly the most efficient agent of permanent occlusion, and, applied at sufficiently frequent intervals, the indication ought to be fulfilled and radical cure attained or at least approximated.

The result of numerous operations which I have since undertaken has fully justified this anticipation.

I selected at first very simple cases, where only a short length of vein was enlarged and only a few ligatures were required. In my first operation, which was at Bellevue Hospital in November, 1886, only two ligatures were used—one immediately above and one immediately below a single varicosity. In this and in the next half-dozen cases the vein was exposed by incision at each point and the ligature applied in the wound, which was then closed by a single suture. In these cases the wound usually suppurred to a trifling extent. Since that time the ligations I have done have all been subcutaneous and the formation of a single drop of pus has occurred only here and there in exceptional instances. I except three cases in which suppuration resulted at each point of ligature from the use of septic catgut.

In the ligation of varicose veins, as in all other operations, antiseptic methods and precautions in preparing the limb, in operating, and in dressing should be scrupulously observed. If, however, by neglect of these, some suppuration occurs, I have not found it to do serious harm beyond the trouble it occasions in multiplying dressings and detaining the patient in bed. The distance between the ligatures should vary in accordance with the size and varicosity of the vein and its apparent or probable anastomoses. In long stretches of large but comparatively straight veins the intervals should be not greater than from one to two inches. Where there are masses of dilated and convoluted veins forming a tumor, it is impossible to include it in the ligatures, and they must be applied all around it and as closely as possible to it, embracing every immergent and emergent vein that can be discovered. I use a catgut suture taken directly from the juniper oil and as small in size as possible consistent with necessary strength. The ligature should be carried by a straight needle, preferably the Keyes-Reverdin, immediately behind the vein, and the needle unthreaded

and withdrawn. The needle is then carried immediately in front of the vein, through the openings which it has previously made, and the end of the ligature caught up and brought back. The vein is thus subcutaneously included in the ligature, which is then tied and cut short, and, if the catgut is fine enough, the knot pushed back beneath the skin. If, however, the vein is larger and coarser catgut has to be used, no trouble results from leaving the knot in the orifice of the wound; in fact, I prefer it. It occasionally happens that a large anastomotic vein, passing vertically inward to the intermuscular vessels, will prevent occlusion of a superficial vein at a given point, leaving a globular varix. In that case it may be necessary to tie the anastomotic branch. This may be done in the manner devised by Dr. E. W. Clarke, house surgeon at the New York Hospital, for approximating the fragments of a fractured patella. The ligature is carried deeply along one side of the vein; the needle is re-entered at the point of exit and with the ligature carried at right angles to the first line of puncture; it is then re-entered at the second point of exit and carried at right angles to the second line of puncture; it is again re-entered at the last point of exit and brought out at the original point of entrance, thus surrounding the vein.

After the dressings have been applied, the limb should be placed upon a posterior splint and the patient kept in bed for about ten days or two weeks, after which he should wear a roller bandage for two months.

The number of ligatures necessary to be applied is a matter of absolute indifference. The patient will recover just as rapidly whether he has few or many. I have often used from twenty to thirty upon a single limb. In one case forty-two were applied upon the two legs at one time, and sixteen more in a secondary operation. Few cases require less than ten or twelve, and the average number is greater. Usually both legs are involved, but one is always much less seriously affected than the other, and will require comparatively few ligatures and perhaps none.

I am unable to state with precision the number of cases in which I have operated. I can recall upward of one hundred in hospital and private practice, and, including those operated upon by gentlemen of the house staff, the whole number is probably upward of one hundred and fifty and the number of ligatures applied from two to three thousand.

For a time I did this operation in many instances for the simple purpose of observing results, and I still believe it justifiable in any case of crural varix where no special contra-indication exists. I now restrict it to those cases in which there is some direct purpose to accomplish, and which may be very well classified as follows:

1. Cases where this condition constitutes disability in physical examination—as for admission to the army or navy, or for appointment in a municipal department.

2. Cases where the size of the veins, the formation of venous tumor, or the attenuation of the coats or tegumentary coverings threaten hæmorrhage.

3. Cases where chronic ulceration or eczema exists.

4. Cases where circulation has been so far impaired as to occasion swelling of the feet or loss of power in the limb.

I have already said directly or by implication that this

procedure is devoid of danger, and the number of successful operations reported seems to warrant the statement. Sometimes, in passing the needle deeply, profuse hæmorrhage follows, from puncturing some neighboring vein, but this usually ceases when the ligature is tightened; if not, the next ligature applied immediately below always controls it. In the first of those cases, in which the veins were excessively large and the ligatures at the same time numerous, I feared some difficulty in the re-establishment of the return circulation, but it did not occur, nor has it occurred in any subsequent case. The elevation of temperature is moderate and the pain inconsiderable. In but five cases has there been any retardation of recovery. In one there was partial anæsthesia with paralysis, as I believed, from implication of a nerve in the popliteal region. These symptoms gradually disappeared after the solution of the catgut. There need be no danger of including a nerve of any considerable size, and if by chance some smaller filament be implicated, the effect is likely to be transitory and relieved as in this case mentioned. In three other operations, to which reference has been made, every point of ligature suppurred. I was able to trace this accident to the use of defective gut, by careful observation of other operations done at about the same time and in the same wards, with the same material. In another case occurring very recently, suppuration also took place at each point of ligature. It was at first attributed to an existent ulcer of fourteen years' standing, and to a considerable extent of surrounding unhealthy tissues. But in a few days each ulcerated point assumed an exact circular outline, clean cut as by a punch, suggesting another possible explanation. Everything healed, however, including the original ulcer, and the patient was discharged from the hospital, cured, four weeks from the time of operation. In some instances I have thought trivial suppuration, with some diffused inflammation of the leg, to be due to sepsis from an ulcer which ordinary antiseptic treatment had failed to cleanse. In others, where one or two points of ligature out of many have afforded a drop of pus, I have been quite unable to account for the fact. I have never had occasion to suspect pyæmic poisoning, and I can see no sufficient reason for its occurrence.

It has been suggested that a special danger is incurred in this operation from the formation of thrombosis, and that excision is therefore a safer procedure. It has not been my intention to compare multiple ligation with other methods of operation except in regard of efficiency and certainty of cure. I may say, however, that, while relying upon so great a number of cases without accident to support my belief in its safety, I can see no reason why thrombosis should be more to be feared in this than in any other method of securing occlusion. Even excision requires two or more ligatures, and in using a greater number of ligatures, however many, the danger, whatever it may be, inheres only in one, the proximal one. In excision of large varices, moreover, a serious and bloody operation replaces a simple one and involving much greater liability to suppuration and infection.

I have operated upon patients of various ages and in various conditions of health, and, while the simple nature of

the procedure makes only ordinary caution necessary, there are, of course, constitutional conditions which should preclude any form of surgical interference. There are also local conditions and causes of which these superficial venous enlargements and varicosities are only symptomatic and which exclude them from the class of ordinary crural varices that have been considered.

Finally, this operation in its results, immediate and remote, has proved generally successful. The cure is complete in proportion to the completeness of the operation, and, so far as can be judged at the expiration of two or three years, the cure is radical. In some cases where the veins to be treated are numerous and not of great size, some points at which ligation is required may be overlooked on account of the completeness with which the vessels are often unloaded and collapsed when the patient assumes the recumbent position for operation. This may be avoided by tying in the erect position when an anæsthetic is not employed; or by marking with nitrate of silver or iodine before the patient is put upon the operating table. Even then such marks may be washed away by the irrigating fluid, and a secondary operation becomes necessary. In some other cases, where the varices form a considerable tumor, secondary operation will always be required to effect entire obliteration. In each of four such cases which I have had, the tumor, though in one instance originally as large as a lemon, had become after a few weeks small enough to be included directly in the ligatures.

I have never observed a collateral venous circulation set up and afterward becoming varicose, such as has been asserted to always follow any attempt at radical cure. It is probable that the excess of blood from the intermuscular veins—which, from being forced into the superficial vessels, has dilated them—is now directed into the still deeper veins, and by them continues to be returned. I have sometimes seen after operation in severe cases one or more veins still moderately dilated, and not infrequently those upon the feet, which I have not been accustomed to ligate. These are not likely to occasion any inconvenience, and it is better to abstain from interference. If, however, any of these vessels continue to enlarge, a few additional ligatures will suffice to make the cure practically complete.

The obliteration of the veins is attended by corresponding relief of the morbid conditions which the varices have occasioned. Eczema disappears and intractable ulcers heal often under the primary dressings applied after operation, as ought to happen if these conditions are produced or maintained by the sluggish circulation. When the varicose condition has lasted long and the structure of the tissues has been profoundly altered, it can not be expected that chronic ulcer and eczema will be instantly and permanently cured; but they are at least soon relieved, and if, after healing, they recur, they cease to be intractable, and, so far as we have yet had opportunity for observation, they are eventually permanently healed, which they never are while the varicosity persists. It goes without saying that obliterated vessels will not bleed, and that limbs enfeebled by lack of nutrition will grow strong as the movement of the blood is restored.

I have only maintained for this operation that it effects a cure which seems radical within the limits of two or three years. Whether such cases will eventually relapse and again require surgical attention is, of course, conjectural. Should such prove to be the case, the operation is sufficiently simple, safe, economical of the patient's time, and productive of relief, to have fully justified itself and to warrant its repetition. Not more can be said of many of the more pretentious and accepted efforts of conservative surgery.

I trust I have made plain the intent and principle of the treatment of crural varices which I have advocated. The essential point in this operation, as I have tried to describe it, is not in the use of the ligature or in its subcutaneous method of application, but in the complete obliteration of the whole length of the veins affected. The ligature was long since used in the treatment of crural varices and subcutaneously employed elsewhere. I have resorted to the subcutaneous ligature here simply as the most convenient and effective means of accomplishing the principal object in view.

NOTE.—I observe in the report of the proceedings of the Alumni Association of Bellevue Hospital, published in the "New York Medical Journal" of December 14th, that I am credited with saying, at the close of the discussion which followed the reading of this paper, that I "considered the method by excision about as good (as multiple ligation) except that it was very tedious." This is an entire misapprehension of what I did say. I reiterated the statement that the essential point of the operation which I advocated was the entire occlusion of the whole length of the affected vein, and that any operation which would accomplish this purpose was adequate. I know of no other method which will do this except multiple ligation with catgut. As a matter of fact, I believe excision, where the varices are large, to be not only tedious but often dangerous, and to cut out portions of vein at sufficiently frequent intervals to effect the continuous obliteration which I have indicated would be so formidable an operation as to be obviously impracticable. Excision would be more properly comparable with ligation at a single point.

BACTERIOLOGICAL INVESTIGATIONS OF A CASE OF YELLOW FEVER

TREATED AT ST. JOHN'S HOSPITAL, BROOKLYN, IN 1888,
WITH REMARKS ON

YELLOW FEVER AT KEY WEST, FLA., IN 1862.*

By ARNOLD STUB, M.D.,
BROOKLYN.

I WILL preface the few short remarks I am able to make upon the micro-organisms I found in the liver and black vomit of a case of yellow fever treated at St. John's Hospital, Brooklyn, with a history of the epidemic of yellow fever as observed by me personally at Key West, Fla., in the year 1862.

The literature on the micro-organisms of yellow fever is so scanty, the results of the investigations still so obscure, and my own researches narrowed down to the limit of a single case, that for the present it will be almost impossible to place any value upon the revelations by the microscope in the study of this disease.

Whatever organism you may find upon the slides I present to you this evening, I make no pretension of showing you something that has never been seen before by others; neither do I pretend to have discovered the yellow-fever microbe.

Although I am convinced that such an organism exists, the discovery of the right one I naturally must leave to later and more able investigators.

I also beg leave to state that in 1862, when I had the misfortune to witness an epidemic of yellow fever, carbolic and salicylic acid as well as jaborandi were not in use, and Professor Wunderlich had not yet written his work on the thermometer as a means of diagnosis and prognosis.

The following history of the fever is collated from notes written during and immediately after the subsidence of the fever, and consequently some of the physiological views expressed will not altogether coincide with the views of today.

The geographical situation and the climatic circumstances of the island of Key West are so well known that I need only state that the island has a slight elevation toward its center of about ten feet above the level of the sea, and lies in 24° 30' latitude and 80° 40' 30" longitude.

The command stationed at the island consisted of four hundred and forty-eight enlisted men of the Ninetieth N. Y. V. and several detailed men of other regiments, who enjoyed, previous to the 27th of July, 1862, comparatively good health. The thermometer during the month of July averaged 85°, and the hygrometer 82°, an excess of heat which in itself is sufficient to harbor and regenerate the yellow-fever poison, if once brought there. Key West, though situated in a near vicinity to Havana, has always had the name of a healthy locality, and fever has only seldom, and after long intervals of healthy seasons, extended its devastating power to the island. During the year 1861 the difference between the height of the thermometer and hygrometer, also the average temperature, had been the same as in 1862. A number of unacclimated men (several hundred) arrived in the spring of 1861, and remained during the summer, but no case of yellow fever occurred. As in 1862, the wind blew nearly constantly from a southern direction, and the fever was, as usual, severe in Havana. The winter of 1861-'62 had been unusually mild, which caused a partial postponement of the decay of the vegetation until this summer. Large tracts of land, overgrown with brush and underwood, had been cleared during the spring and early part of summer for military purposes, which, though the most part of the vegetable matter had been burned up, left still a large quantity of rubbish to spontaneous decay. Portions of land of smaller dimensions in the neighborhood of the Marine Hospital and the buildings erected for a machine shop by the navy were fenced in by the owners, and the ground had been broken for gardening purposes. The United States Engineer Department, on the other side of the island, caused the resurrection of the corpses of Africans buried on the south beach two or three years previous, being obliged to use that portion of ground for military purposes. The graves were opened and the bodies transferred to another locality. I have been told

* Read before the Medical Microscopical Society of Brooklyn, December, 1888.

that the removal of the corpses caused an almost insupportable stench, which infested the locality for some time. The work was done by laborers, mostly composed of Irish lately arrived from Europe. The wind, constantly blowing from the south or southeast, had caused the sea on the south beach of the island to deposit large quantities of decomposing vegetable and animal matter, which constantly exhaled miasmata.

On the 21st day of July, six days before the first case of yellow fever occurred among the troops stationed at Fort Taylor, Key West, Fla., two cases of fever were admitted to the Marine Hospital from the bark *Adventure*, coming directly from Havana. One of the patients died on the 22d of July with black vomit.

At the commencement of the epidemic I was in charge of the General Hospital, Key West, Fla. The fever, beginning on the 27th of July, reached its height in the latter part of August and commencement of September. Seven deaths occurred in my hospital on the 4th of September, four deaths on the 6th, and five deaths on the 8th. From this day the fever abated, and gradually assumed a milder type. The number of patients treated by myself amounted to two hundred and seventy-eight; of these, I lost fifty-seven. (This record takes in the time from July 27th to September 30th; after the latter date I was taken sick with the fever myself, and kept no private record.)

The first case, as already stated, occurred among the troops at Fort Taylor, Sunday, July 27, 1862.

The man, Private W. C., Co. K, Ninetieth Regiment N. Y. V., reported himself sick early in the morning at sick call, and the physician in charge sent him to the General Hospital at Key West Barracks, Florida. He arrived July 27, 1862, at 2 P. M. Early in the morning of the 28th I was called to his bedside; found him almost pulseless, skin cold, lying on his back, and throwing up black vomit with such a force that it soiled the ceiling above him. He died in the afternoon of the same day. No private record of his treatment kept.

The next patient was found on the morning of the 30th of July in his tent with black vomit, and died in the evening.

On August 2d two more cases occurred, and one of the patients died August 9th. Another reported sick August 3d and died August 6th. From the 3d of August until the 15th the fever made a pause, and though a good many, from want of experience, not knowing the treacherous character of the enemy they had to deal with, exited in the belief of its entire disappearance and pronounced the fever of a mild type, on the 15th of August two new cases occurred, and from that date until the 8th of September I had an increase of from five to ten fever cases per diem—some mild, others of the worst type.

(From a sanitary point of view it will be of interest to relate that the regimental quartermaster occupied for his office a small block-house situated near the regimental stables, and seven men, detailed in succession as quartermaster sergeants or clerks, took the fever, and, with the exception of one, died.)

The almost daily prostration of my nurses convinced me at once that colored persons born on the island would be the only ones fitted to act in such capacity, and, upon my urgent request, the commanding officer ordered the employment of negroes as nurses in our hospital.

Throughout the whole of the epidemic premonitory symptoms were generally absent. In a few single cases the patient complained, for days previous to the attack, of pain in the head and constipation. In two cases diarrhœa ushered in the black vomit without previous fever. The same matter was discharged from the bowels, and death by coma soon closed the scene.

Nearly every case presented throughout the whole of the epidemic a different series of symptoms, much influenced by the constitution, temperament, and idiosyncrasies of the patient. In opposition to observations made by others in almost all other epidemics of yellow fever, there was no particular time during the twenty-four hours of the day when the attack occurred. Men were seized at all hours—some early in the morning or evening, others during mid-day or at night. In most of the cases the attack came on suddenly. The victim was seized with a severe pain in the head, mostly across the supra-orbital region, often preceded by a regular chill, sometimes merely by a feeling of cold. The pain soon extended to the eyeballs, and was combined with intolerance of light.

Pain in the back and neck and across the knees caused extreme restlessness. In a few cases the brain symptoms reached a high degree in the beginning, and delirium soon commenced; but I found that these yielded easier to treatment than others where meningitis manifested itself in a later period. The adnata of the eye was generally watery, and gave to the patient the peculiar appearance of being inebriated. The skin was generally hot and dry; sometimes, and particularly in those cases which speedily terminated fatally, I found the skin cold and covered with a clammy perspiration. The pulse varied from 85 to 109, and was full and incompressible, except in those cases whose skin was cold and clammy, where I found the pulse small and gaseous. The tongue was almost always covered with a white fur, with red tip and edges. The latter, I mean the red tip and edges, corresponded exactly with the pulse and febrile excitement. The higher the pulse, the stronger the fever, the redder the tip of the tongue. Only in two cases during the whole epidemic did I meet with a dry tongue; in one case only it had a brown, dirty coating. Almost always the tongue was covered with a white fur and punctated red, on account of the enlarged papillæ. The bowels were sometimes constipated and hard to move; sometimes open, even too loose. The evacuations were generally natural in the beginning of the disease. After the administration of a cathartic, bilious evacuations soon followed; only in one case I observed, after calomel and oil had been given and no evacuation resulted, that an enema caused the discharge of a light-colored fluid, and a whitish-gray looking mass, resembling the stools often seen in icterus. This patient soon died. In not a few cases the stools after the administration of calomel remained for days of an inky color and very frequent. The urine in most cases in the beginning of the attack was normal, in the severest type scanty, and the little that did pass dark-colored, and threw down a heavy, brick-colored sediment.

Nausea sometimes, but not always in the worst cases, commenced early in the first febrile stage, and the stom-

ach yielded its contents of food occasionally mixed with bile.

These symptoms, as described in the foregoing, continued for a longer or shorter period. Sometimes the fever remained on for twelve, twenty-four, or forty-eight hours, sometimes longer; in a few cases that terminated fatally, seventy-two or seventy-three hours. During the prevalence of the fever, headache, pain in the back and eyes, with insatiable thirst, formed the most distressing symptoms. Generally after the application of hot baths, with warm diaphoretic drinks, perspiration was soon established and continued during the prevalence of the fever.

In some cases, however, all remedies failed to excite the skin to proper action, and perspiration, if momentarily established, soon gave place to a hot and dry skin. This state lasted until the second stage of the disease, which, as above stated, according to the violence of the attack, began at the twelfth, twenty-fourth, or forty-eighth hour. During the beginning of the second stage the patient was free from headache and fever, but generally complained of a slight pain in the back. The stomach was more or less irritable, and often yielded its contents without the least effort; sometimes retching distressed the sufferer. A pain more or less acute, according to the severity of the attack, particularly felt on pressure, manifested itself in the epigastrium. I noticed that men felt comfortable, and expressed themselves willing to leave the bed, but on slight pressure they felt a severe pain in the epigastrium and soon black vomit came on. Generally the worst symptom presented itself after the patient had been for about five or six hours in the second stage. The pain in the epigastrium increased, a severe burning thirst troubled the sufferer, vomiting soon commenced—first of the fluid taken to alleviate the thirst, often clear and transparent, sometimes mixed with bile. This stage lasted for about three or four hours, when the fluid assumed more the color of water, with a brownish-black sediment on the bottom.

On examining it closer, it was a rosy flocculent mass suspended in the fluid; some, of greater specific gravity, sank to the bottom, and with considerable tenacity adhered to the sides and bottom of the vessel. Often the quantity of fluid thrown up increased, the stomach apparently yielded its contents without the least effort, and, throwing the vomitus sometimes several feet away from the bed of the patient, appeared to act like a force-pump.

The matter thrown up resembled now more a thick chocolate, and, after standing, it deposited a coffee-ground-like, grumous mass, which, expressed through filtering paper, lost considerable of its dark color. Bicarbonate of potassium thrown into the fluid gave off carbonic acid with effervescence, and blue litmus-paper dipped into it became at once of a red color. If put into a test tube and heated over a spirit-lamp, the fluid, if previously transparent, became opaque, with masses of albumin floating in it. In those cases where uræmia was present—and in nearly all cases of vomitus niger uræmia existed—the black vomit, first neutralized with bicarbonate of potassium, if heated in a test tube, gave off ammonia; and a glass rod dipped into hydrochloric acid and held over the vapors arising from the

heated fluid, developed white cloudy fumes, evidently the chloride of ammonium. The urine, if secreted at all, was invariably albuminous, and sometimes more than one half of it was blood.

Often blood alone was discharged from the bladder. During the whole of the epidemic I observed as one of its characteristics that the matter was not ejected in large quantities at a time from the stomach, and only in a few cases did the matter thrown up at once exceed two quarts. Hiccough troubled the patients considerably. The matter, in consequence of its acrimonious nature, frequently excoriated the tongue, throat, and lips; the stools also, often consisting of a similar matter, caused a painful sensation in the anus, at the same time having a very offensive smell. The time from the commencement of the black vomit until its termination in health, or death, of the patient, differed considerably; sometimes, though seldom, it ended fatally in twenty-four hours; often it lasted longer, and in one case it was protracted for four days; it ended in recovery of the patient. Although I always considered its appearance as a very grave symptom, it has been my fortune in twelve well-marked cases of vomitus niger to restore the patients to health. Out of 278 patients, 69 presented the symptoms of black vomit—57 died and 12 recovered. During the last stage, above described, I found the pulse generally below the natural standard of health. It varied from fifty to sixty-five pulsations in a minute, and was generally small and easily compressed. In two of the cases which terminated fatally the pulse reached one hundred and nine beats in a minute.

The color of the skin differed considerably in the different cases. Sometimes it was natural; seldom it presented the different shades of yellow, but, generally speaking, the yellow color, if it appeared at all, showed itself shortly before death took place. In two patients, who afterward recovered, I noticed a third, or, as some may call it, a fourth stage of the fever. The matter thrown up changed its color; in place of having a tarry appearance, it became mixed with streaks of blood; the tongue in several places became scurfed, and blood began to ooze from it, as well as from the gums and lips. Epistaxis and bloody stools made their appearance, and the yellow color of the skin, previously pale, assumed a dark orange-color. The hæmatemesis I succeeded in checking, in the one case with half-drachm doses of tincture of chloride of iron every hour, and in the other case the liquor ferri persulphatis (Squibb's) had an excellent effect. The ten other remaining patients with black vomit passed rapidly, after the vomitus had been checked, into a state of convalescence, and improved faster, and sooner resumed their duties, than others who, from a severe attack of yellow fever, passed from the first stage to convalescence without going through a second and third stage.

In the fatal cases the patients generally died on the fourth or fifth day. The recovery after the yellow fever was usually rapid; ten days after the first attack the patients commonly resumed their duties again.

In five cases endocarditis was the consequence of the yellow fever; three of these patients took the fever twice in the course of five weeks, and the second attack was more violent than the first. One, after the yellow fever, had symp-

toms of phthisis pulmonalis, and died five months afterward. Another the fever left with nyctalopia, and in one case an attack of acute hepatitis followed a severe attack of yellow fever. The rest, as already above stated, recovered rapidly.

I exceedingly regret that throughout the whole of the epidemic I was so constantly employed at the bedside of my patients that I could find no time to make post-mortem examinations.

In the treatment of the yellow fever I followed the theory (1862) that the poison, similar to that of malarial fevers, attacked the ganglionic system. The latter, which penetrates through the whole of the human body, runs in branches throughout the whole of the arterial and venous system, both the ganglionic and arterial system depending upon each other for their vitality. It (the poison) attacks first that portion of the ganglionic system which supplies the external capillaries. These lose their vitality or tone, and cause a concentration of the blood toward the center of the body.

The fever in its first stage I considered caused by the irritation of the capillaries of the external skin. The natural consequence is heat of the body and absence of perspiration. To restore the tone of the external capillary system, and to prevent a concentration of the blood toward the center of the body, seemed to me the first object to attain in the commencement of the treatment; the next, to remove the cause of the evil—I mean, to counteract the morbid influence of the treacherous poison absorbed by the nervous system and causing the results mentioned. To meet the first indication, I found that nothing would answer better than the hot bath and sinapisms. To act as an antidote against the poison, I used large doses of quinine by the mouth, as well as locally by friction all over the body. The quinine acts as an apyretic, as a tonic and stimulant on the ganglionic system, besides combining the properties of a sedative, if administered in large doses, and reducing the palpitation of the heart, which, in yellow fever, often was a prominent symptom.

The same poison which attacks the ganglionic system of the external skin also in many cases involves the capillary system of the intestines, and causes the peristaltic movement to be suspended, and a purgative will be required to clear the alimentary canal and to prepare the system for a prompt absorption of the quinine. In a similar manner are the other organs—the kidney, the liver, and sometimes the spleen—affected, to which I ascribe the local pains often felt in those regions. If the indications above mentioned have been fulfilled, the patient will pass at once into a state of convalescence; if not, the second stage commences. The capillaries, either partially or entirely, according to the more or less severe action of the poisonous influence upon their ganglionic system, have lost their tone, contract, and cause the blood, in leaving them, to concentrate more toward the internal organs. This retrograde movement of the blood is not effected at once, but it takes place gradually, in harmony with the advance of the fever poison on the ganglionic system. It leaves the patient, for a short time at least, comparatively free from pain. This I consider the most critical period of the malady. This is the moment

when the physician is to concentrate his attention on the patient, and by judicious measures to prepare the network of capillaries of the lining membrane of the stomach for the shock that awaits it. The poison is now about to center its malignity on the capillary system of the stomach. It excites the organ first to spasmodic action, resulting in vomiting, and causes an abnormal secretion of the gastric juice; eventually the capillaries lose their tone, and in the mildest cases hæmatemesis is the consequence, or, *in extremis*, the vomitus niger.

The latter, I believe, is principally caused by the blood entering the stomach through the walls of the capillaries, meeting there with a fluid which, in regard to some of its constituents, resembles the gastric juice in its normal condition, and by this the fluid is decomposed. I believe that the apparatus producing the gastric juice has suffered by the invasion of the yellow-fever poison to such a degree that its product becomes changed in regard to the proportionate combination of the different materials composing the normal gastric juice; because, if this is not the case, why does not the stomach always in simple hæmatemesis discharge the blood decomposed and transformed into the mass called black vomit, as the stomach at all times contains more or less of gastric juice, which, if it alone in its normal condition were able to decompose the blood, should do it then also? And why, I ask, is it that in a case of black vomit the first sign of hæmatemesis is hailed as a favorable symptom?

J. Baptista Lacerda describes, in No. 4 of the "Annals of the Academy of Rio de Janeiro" of 1887, bacteria which he found in the parenchyma of the liver, in the gall-ducts, the veins and arteries, the lymphatics, and the convoluted tubes of the kidneys of six individuals who had died of yellow fever. He considered them to belong to a different species from any other bacteria before known. He describes them as cylindrical granules, forming among themselves chains, and representing under the microscope the appearance of a tree with three branches—the central branch straight upward, the side branches a little curved. He mentions, however, that sometimes they present a different picture, but under all circumstances they show a decided inclination to ramification.

Professor Sternberg, of Baltimore, found in two cases out of nine the same bacillus described by Lacerda and Baker. Professor Sternberg also found the micrococcus described by Dr. Freire and named *Cryptococcus xanthogenicus*. He states that it fluidifies gelatin very slowly and forms upon the surface of agar-agar a milk-white coating.

Its morphology is represented upon the drawing I herewith take the liberty to circulate, which Dr. Sternberg made after a preparation from Dr. Freire's laboratory in Rio de Janeiro. The magnifying

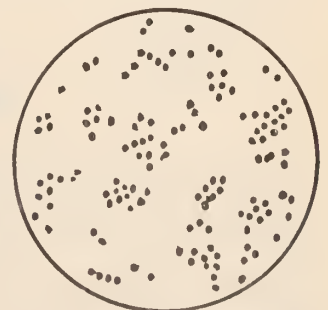


FIG. 1.—Cocci found by Dr. Sternberg. Drawing copied from the "Centralblatt für Bacteriologie," vol. iv, No. 18.

power is about 1,000 diameters. The views of Dr. Sternberg are published in the "Centralblatt für Bacteriologie," etc., No. 18, vol. iv, and his letter is dated September 2, 1888.

A previous article of Dr. Sternberg's, published on page 449 of the "Medical News" of 1888 and entitled "Investigations relating to the Etiology and Prophylaxis of Yellow Fever," disproves the prophylactic utility of inoculating people with the coccus discovered by Dr. Domingo Freire.

Professor Sternberg, however, seems to be of the opinion that our present knowledge of infectious diseases entitles us to the belief that yellow fever is caused by a living micro-organism, and that, if we are able to discover the latter, we shall be able to protect ourselves by inoculation against the fever. I also understand that Professor Sternberg has discovered a coccus heretofore not described in relation to yellow fever. I have seen a cultivation of the same, but, as I have not found anything about it in literature, I do not consider myself justified in entering into a description of it.

The specimens I have the honor to present before the society consist, in the first place, of black vomit stained by Gram's method. If you examine the same you will find a bacillus resembling closely the one described by Lacerda, and perhaps you may find also the cocci which Dr. Freire and Dr. Carmonay Valle describe. The latter, however, you perhaps will find better represented in the specimens of urine I shall endeavor to demonstrate. In these specimens you will find a large number of granular casts, blood casts, blood-corpuscles, and leucocytes all broken up, besides



FIG. 2.—Bacilli and cocci found in the vomitus niger; the former identical with those described by Dr. Lacerda, Dr. Freire, and Dr. Carmonay. Cocci resembling those found by Dr. Sternberg. With Zeiss's homogeneous (oil) immersion, 2 mm., and apochromatic ocular, No. xii.

numberless epithelia from the pelvis of the kidney, also tyrosine and leucine. At least I found them, and if the urine is not entirely decomposed, in spite of my endeavor to keep it, you will find the same that I did. Dr. Thomas, of St. John's Hospital, has kindly furnished me with the specimen of urine from a yellow-fever case. Dr. Bliss has furnished me with a specimen of the black vomit, al-

though I miss some of the features I noticed in the appearance of the fluid I observed in 1862—for instance, the ropy, sticky mass adhering to the sides of the vessel; in the main, it resembles the vomitus niger I have seen before, although it looks blacker. It also was highly acid, and bicarbonate of sodium caused effervescence. I have not examined the fluid unstained, but Dr. Kemp, of the Hoagland Laboratory, has, and I hope he will show us the specimens. I mentioned before that I stained some of the specimens after Gram's method, and found bacilli closely resembling those described by Lacerda. But I also stained some specimens with a solution of methylene blue and aniline water, also with a watery solution of fuchsine. The last I shall not present before you, because I hardly found anything upon the covering glasses. The specimens stained with methylene blue I submit to your inspection, and I am of the opinion that the micro-organisms differ somewhat

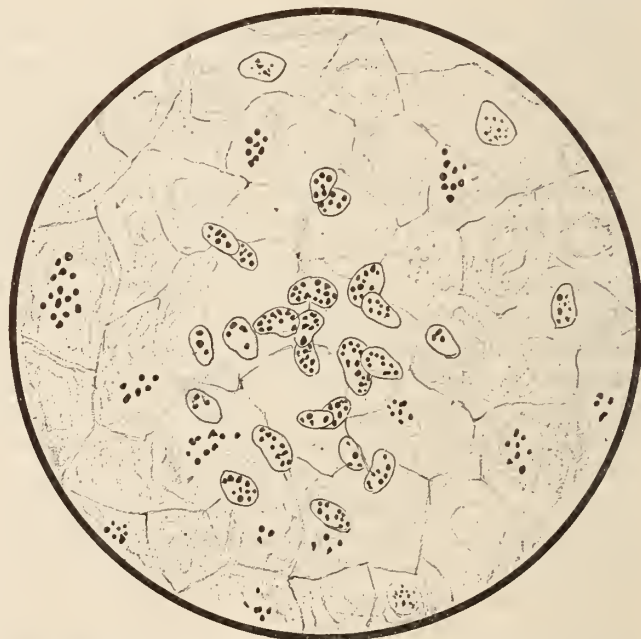


FIG. 3.—Section of liver from the case of yellow fever in St. John's Hospital. With Zeiss's homogeneous (oil) immersion, 2 mm., and apochromatic ocular, No. xii.

from those stained after the method of Gram. Besides the bacilli and cocci already described, you will find in the different fields by moving the slides numberless small cocci, some of them arranged in clusters, also a very peculiar chain coccus. Dr. Bliss sent to Dr. Heitzmann a specimen of the liver, and the latter examined the specimen and reports as follows:

NEW YORK, November 9, 1888.

The piece of the liver of Captain Fellan, brought for examination by Dr. Bliss, after having been hardened in a tenth-of-one-per-cent. solution of chromic acid, under the microscope exhibits the following features:

With low power a marked swelling of the lobules is discernible, whereby the interstitial connective tissues appear compressed, the portal vein being empty and likewise compressed, the bile-ducts unchanged.

With higher powers (500 to 600 diameters) the liver epithelia appear on a large scale, broken up to lumps of coarse granules,

and medullary or inflammatory corpuscles. Scarcely a single epithelium is found unchanged.

The lumps into which the epithelia are split up exhibit all stages of transition into fat, from the appearance of a yellow, slightly glistening mass up to the presence of highly refracting granules or lumps, or globules of fat. In some places the liver epithelia are entirely transformed into fat globules. The fat, where fully formed, is not visible in my specimen, owing to the treatment with alcohol and ether for imbedding in celloidin. But the transition stages from protoplasm to fat are plainly marked. The hollow spaces, corresponding to previous fat-globules, in many places show needle-shaped crystals of margaric acid.

The intense swelling of the liver epithelia has led to compression of the capillaries between them to such an extent that the walls of the capillaries appear as solid tracts, mostly lacking calibers. The hepatic veins are likewise much reduced in caliber.

The interstitial connective tissue, being reduced in bulk, as mentioned above, is in the condition of a retrograde change into protoplasm and medullary tissue.

Diagnosis.—Intense parenchymatous hepatitis, with intense acute fatty degeneration of the liver.

I have never seen this morbid condition in such a high degree, though similar changes I have observed in the liver of a person that killed himself with phosphorus, and in a liver from a person that died with so-called black vomit or swamp fever of the South, sent to me a few years ago from Charlotte, N. C.

[Signed.]

DR. C. HEITZMANN.

Dr. Bliss also handed to me a specimen of the liver for bacteriological investigation. I hardened the pieces in absolute alcohol. The sections were also put into absolute alcohol, and I at once stained them after Gram's method. Some I gave a second stain with eosin. You will observe, gentlemen, particularly upon one of the sections, that the identity of the liver cells is almost completely destroyed, but a large number of round or oval cells are visible, studded with very distinctly marked bluish-black roundish bodies, which I consider to be cocci. I admit that the question if these bodies may not be pigment granules is an open one, but I wish to state now, before the discussion opens, that in all previous cases where I have stained specimens of liver by Gram's method the pigment granules have, of course, been visible and darker than any other substance, but in no case have I seen them take the distinct stain that the cocci do upon these specimens. I also should like to call your attention, gentlemen, to the fact that you find those cells studded with cocci in groups upon these specimens, and by moving the slides you will notice that large fields show no evidence of cocci-like formations. The pigment granules, however, are, in all other specimens of liver I have examined, evenly distributed upon all the cells of the preparation. In some of the specimens you will find occasionally small piles of cocci lying outside of the cells, and evidently belonging to another species. Bacilli I have found none. I have made no cultivations, because I have been told that specimens of the vomitus and of the liver had been sent to the Hoagland Laboratory for that purpose, and, if you are familiar with the laborious task of making cultivations from such specimens as we have under consideration to-day, you will understand the almost insurmountable diffi-

culties a physician in general practice has to conquer if he undertakes it, provided he wants the work to be of real scientific value. A few weeks after the patient with yellow fever died in St. John's Hospital, Dr. Wallace informed me by telephone that he had a patient with black vomit under treatment, and I requested the doctor to send me specimens of the vomitus and of the urine. He did, and when I examined the vomitus I found it of a similar color to the vomitus from the case in St. John's Hospital, but not quite so dark; more of a coffee-brown color where the former was altogether black. The former, if you will please remember, was of acid reaction; Dr. Wallace's specimen, however, was neutral, almost alkaline. Upon inquiry I learned, however, that the patient shortly before he vomited had taken several doses of bicarbonate of potassium. I proceeded to prepare cover-glass preparations and stained after Gram's method, and used for the second stain vesuvin. A few cocci bacilli in rod shape, single and in clusters, was all I found, but nothing like the micro-organisms I found in the vomitus from the St. John's case.

The urine was acid, of the specific gravity of 1.025, of a straw-color, albuminous, and containing hyaline casts, some slightly granulated; no epithelia from the pelvis of the kidney, a few from the urethra and bladder, but a number of leucocytes upon each field. If you remember, gentlemen, I told you that the leucocytes found in the yellow fever case from St. John's Hospital were all broken up and the man died. But in the case of Dr. Wallace I found the white blood-corpuscles normal, only in a few instances a slight tendency to breaking up, and I told the doctor that his patient would get well. What diagnosis may have been made in this case I do not know, but the symptoms described to me by the kindness of the doctor were sufficiently grave to cause alarm; however, from the appearance of the leucocytes, I considered myself sufficiently justified in making a favorable prognosis, and I have learned since that the patient got well. I beg leave, gentlemen, to take this occasion to urge upon you the high practical value to be placed upon the theory of the appearance of the leucocytes found in the blood and in the urine of patients. This theory of Dr. Heitzman's, who has given in his work on "Microscopical Morphology" a full explanation of his views, is not sufficiently understood and valued by microscopists in general, and I assure you that in various cases already I have been enabled to make a correct prognosis based upon the microscopical examinations of the pus-corpuscles or leucocytes found in the urine of patients suffering from kidney disease.

Antipyrine as a Local Styptic.—"A French physician relates a case in which a boy of fourteen suffered from persistent bleeding after the extraction of a molar tooth. Perchloride of iron was without effect, and so much blood was lost that syncope was induced. On recovery, the hemorrhage again broke out and perchloride of iron was once more tried, but vainly. The cavity was then plugged with two or three pledgets of lint steeped in solution of antipyrine. The bleeding at once permanently ceased. It was noticed that while the perchloride caused severe pain, the antipyrine was not objected to. It is suggested, not improbably, that the antipyretic action of this and similar drugs may possibly be due to the fact that they diminish the blood-supply by their astringent effect on the blood-vessels."—*Ohio Journal of Dental Science.*

COCILLAÑA; A CLINICAL STUDY.*

By REYNOLD W. WILCOX, M. A., M. D.,

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IN May of this year there was placed in my hands a supply of the concentrated tincture of cocillaña. My studies of apomorphine, the results of which had modified the treatment of acute bronchitis and given a clearer idea of the characteristics which an expectorant should possess, led me to seek further to find one which should be effectual in doses given at longer intervals and without the addition of a bromide, which is frequently objectionable.

The source of the drug cocillaña is the bark of an undetermined species of *Guarea*, which was discovered in Bolivia in 1886 by the eminent botanist, Professor H. H. Rusby, of the College of Pharmacy, who first brought specimens to New York. This species was first described by Dr. N. L. Britton, of Columbia College, in the "Bulletin of the Torrey Botanical Club," 1887, page 143, under the name of *Sycocarpus Rusbyi*, on the supposition that it was a new genus belonging to the natural order *Anacardiaceæ*. On the subsequent acquisition of complete specimens, Dr. Britton at once recognized the true affinities of the plant as being with the genus *Guarea*, natural order *Meliaceæ*, and referred it with some doubt to the species *Guarea trichilioides* (Linnæus). While it is certainly a *Guarea*, there is much difference of opinion as to the species. Dr. Rusby is quite positive that its characters render it distinct from all known species of that genus, in which, I may remark, nearly all the species are separated by very minute differences of structure. The tree is described as reaching an extreme height of some thirty or forty feet and a trunk diameter of nearly three feet. It is low and broadly spreading in habit, reminding one considerably of a large apple-tree. The bark is thick and ash-colored, becoming rough only with considerable age. The larger branches are horizontal, the ultimate ones somewhat erect and bearing the leaves erect, clustered at their ends. The leaves are pinnate, bearing some resemblance to those of the common sumach, but much larger, being a foot and a half or more in length by two thirds of a foot broad, and bearing from five to ten pairs of oblong, obtuse leaflets, the larger of which are six or eight inches in length. In the axils of these leaves appear the loose racemes of flowers some eight or ten inches in length. The flowers are small, scarcely larger than the head of a small carpet-tack, with the parts in fours, of a dull-greenish color, very inconspicuous, and are succeeded by a somewhat woody, fig-shaped fruit, as large as a walnut. It contains four cells, one or more of which are commonly obliterated as it matures, and one or two erect seeds.

Professor Schrenk described and figured the bark in the "Druggists' Bulletin," 1887, page 222. The characteristic peculiarity, upon microscopical examination, is the appearance of large resin or latex cells containing a peculiar yel-

low viscous substance, on which the medicinal properties of the bark may perhaps depend.

No adequate chemical investigation has yet been undertaken, so that it is impossible to say with certainty to what constituent its medicinal properties are due.

Its physiological action, when the drug has been given in the crude state—*i. e.*, in the form of the powdered bark—is the production of nausea and a desire to vomit, with a metallic taste in the mouth, within about half an hour after the administration and lasting an hour, the nausea being accompanied by an early discharge of mucus and afterward by dryness of the throat. It may be accompanied by slight dizziness, but not by headache. There is a desire to defecate, which, however, may be restrained. Further, slight perspiration has been observed. Its action, then, may be stated to consist of stimulation for some hours of the vessels and glands of the mucous surfaces, more especially of the respiratory tract, with subsequent diminution of activity (sedation). This action probably takes place because the drug is eliminated by way of these tracts. In the administration of the drug in the form of the concentrated tincture sneezing and discharge of nasal mucus have not been observed, and the effect upon the throat is not so marked as when the powder is used.

The preparation employed was the concentrated tincture of the bark,* the dose varying from half a fluid drachm to two fluid drachms, administered every two to eight hours. This preparation was the one with which the experiments were commenced, and for the sake of uniformity it was continued. I believe, however, that the fluid extract, in doses of from five to twenty-five minims at the above-mentioned intervals, would, on account of the avoidance of alcohol, be more satisfactory in acute and probably also in chronic diseases. Many of the cases reported were demonstrated before my class of matriculates in clinical medicine of the Post-graduate Medical School, who have had abundant opportunity to verify both the physical signs and the results of treatment. The cases are recorded as briefly as possible, and many ordinary symptoms and signs are omitted in the statements.

CASES OF ACUTE BRONCHITIS.—CASE I.—*May 24th.*—A. L., merchant, thirty-five years old, has suffered from repeated colds in the head for the last eight years, and as a result has extensive catarrhal disease of the naso-pharynx and middle ear. For the last three days he has had a teasing cough, inappetence, at times nausea, and constipation. Temperature, 101° F.; pulse, 110, of fair volume; breathing, 26. Cough dry and expectoration scanty. Inspiration and expiration are roughened. Pitch of respiratory act not raised. Many dry and very few moist râles, the latter only in cough. He was ordered to take half a drachm of cocillaña every two hours, to have a mustard foot-bath, and to apply cotton wadding to the chest after rubbing in camphorated oil.

26th.—Great relief from cough. A profuse watery expectoration appeared about six hours after taking first dose. Râles are now chiefly fine and mucous and are few in number.

28th.—Great improvement. This patient has been frequently treated with apomorphine for attacks of bronchitis,

* Read before the Section in Theory and Practice of Medicine of the New York Academy of Medicine, December 17, 1889.

* This preparation is made by Parke, Davis, & Co.

but says that more relief has been obtained in a shorter time than with that drug when begun so late as the third day.

CASE II.—*June 6th.*—A. Z., eighteen years old, has had a cough for two days, after exposure to drafts. Temperature, 100.5 F.; pulse, 108, of fair volume; respiration, 24. He complains of loss of appetite, constipation, and soreness in the chest. His cough is without expectoration, frequent, disturbing his rest, and causing headache. He has also pain in the right side, stuffiness in the chest, few mucous but many dry râles distributed over the chest. Respiration harsh and exaggerated. He was directed to take a drachm of cocillaña every three hours and apply cotton batting to the chest.

8th.—Expectoration established at the third dose. The pain in the side remained for twenty-four hours. Chest feels clearer; respiration, 20.

11th.—Complete relief; slightly harsh respiration, with no raising of pitch. Appetite good and bowels moved daily.

CASE III.—*June 26th.*—R. N., aged twenty-five. Has always been well, with the exception of occasional colds in the head, until three days ago, when he began to cough incessantly and had chilly sensations in the back. He is of fair muscularity. His tongue is pale and flabby. His bowels are regular. Temperature, 100.5° F.; pulse, good, 110; respiration, 24 and superficial. The cough is teasing, preventing sleep, and without expectoration. The chest is well developed; no abnormal dullness; slightly increased vocal fremitus, with increased resonance and roughened respiration, more particularly in inspiration. Many sibilant, some sonorous, a few fine moist râles. He complains of soreness under the sternum, especially in coughing. He was ordered to take cocillaña, ninety drops every three hours, to partake of hot soups, rub the chest with a liniment of oil of wintergreen, and afterward apply cotton batting.

27th.—Small amount of expectoration. Pulse, 90; temperature, 99° F.; respiration, 22; cough markedly diminished.

28th.—Great improvement; diarrhœa.

July 3d.—Reports that he is well, and that his cold has disappeared more rapidly than ever before in his experience.

CASE IV.—*June 28th.*—Miss S. B., seventeen years old, has had a cough for four days, preceded by cold in the head. Now has scanty expectoration, with headache from coughing. Vomited last night. Soreness in the axillary regions, but no distinct pain. Vocal resonance and fremitus are slightly increased; harsh inspiration and expiration, especially inspiration; pitch not raised; has loss of appetite. Was directed to take two drachms of cocillaña thrice daily.

September 30th.—Reported that she was cured in four days, that her appetite returned, and the cough and expectoration disappeared. Iron ordered for her anæmia.

CASE V.—*October 25th.*—A. S., sixteen years old, has had a severe cough for the last four days, accompanied by thoracic pains. The respiratory sounds are roughened over all the pulmonary areas except at the bases, and plentiful and fine mucous râles are heard. The cough and dyspnoea are so severe that he is obliged to sit up at night. Has no appetite and is constipated. Ordered cocillaña, half a teaspoonful every three hours.

28th.—Reports that the cough was cured on the second day of treatment and that his dyspnoea is much relieved. The first dose of the cocillaña was followed by emesis.

CASE VI.—*October 30th.*—Miss L. F., aged seventeen. Has always been in delicate health. Two weeks ago was taken with a dry, hacking cough, which was severe enough to keep her awake at night and was accompanied by much pain in the chest and headache. Physical examination showed only roughened and exaggerated respiration over both lungs, with sibilant and some fine mucous râles. She was directed to take a teaspoonful of cocillaña every three hours.

November 1st.—Cough much better, appetite greatly improved, expectoration scanty.

CASE VII.—*November 2d.*—T. T. B., twenty-four years old, for the last week has suffered from a dry, hacking, painful cough, with a scanty expectoration of clear mucus. Over both lungs it was found that the respiratory sounds were roughened without change of pitch or note, nor was there dullness or change in the vocal resonance. At both bases were heard abundant fine mucous râles. He was directed to take half a drachm of cocillaña every four hours.

4th.—Reports entire relief from cough.

CASE VIII.—*November 7th.*—W. F., a school-boy, seven years old. For one day has suffered from soreness in the chest, incessant cough without expectoration, and headache. He has no appetite and his bowels are constipated. On examination, a weak pulse of 120 and a temperature of 102° F. are found. He is an anæmic, nervous boy of fairly good flesh. His chest expands well, there is no abnormal dullness, his respiration is puerile, exaggerated, and harsh. There are no moist, but a few sonorous and many sibilant râles. There is no change in vocal resonance or in fremitus; respiration, 24. He was ordered to take fifteen drops of cocillaña every hour, to remain indoors, and to have cotton batting applied to the chest after inunction with camphorated oil.

8th.—Cough loose; loud, coarse, moist râles on expiration as well as on inspiration; no dry râles; sleeps well at night and his bowels have moved well.

12th.—Much relief, with cure on the 14th. This patient has had repeated attacks of coryza and bronchitis, and usually expectoration is established with difficulty.

CASE IX.—*November 13th.*—Mrs. W., twenty-five years old, has suffered from a dry bronchitis for six weeks. The coughing is incessant by day and night, and now has caused much muscular pain. She can not sleep and has lost her appetite. Physical examination reveals a large number of dry and coarse mucous râles over both lungs. She was directed to take two teaspoonfuls of cocillaña every six hours.

15th.—The cough is diminished in frequency and much looser, and the appetite has improved.

25th.—For four days past she has had no medicine and the cough has returned, but not so severely as at its first visit.

In comparing these cases with a similar series treated with apomorphine, it can be said that apomorphine acts more upon the blood-vessels, cocillaña more upon the glands; hence the secretion produced by the latter is more mucoid. So, again, in cases seen before forty-eight hours of the disease have elapsed, apomorphine will relieve more quickly, but in cases seen for the first time at a late period cocillaña should be preferred. While watery secretion is not established usually under three to six hours from the first dose, in place of the half to one hour after apomorphine, yet the effect of a single dose will last at least three times as long as after the use of the latter drug. Consequently the intervals at which cocillaña is given can be prolonged, or expectoration can be quickly established by apomorphine and continued by cocillaña. The rhythm of the respiratory act is affected only so far as freer expectoration lowers the respiratory rate. That the expectorant effect of cocillaña is not the first stage of nausea is shown by the fact that an increase of appetite is usually observed even under the administration of full physiological doses, and under them indeed the fullness of the pulse is not changed.

CASES OF CHRONIC BRONCHITIS.—In addition to the cases

recorded below, in seven others the patients came complaining of a dry, ineffectual cough, which was doubtless relieved, since they did not return for further treatment.

CASE I.—*November 11th.*—Mrs. L., twenty-five years old, has had a dry, hacking cough for two months, especially in the morning, which causes vomiting and pain in the head and chest. Physical examination reveals a large number of dry râles with very few moist ones. Respiration harsh and exaggerated. No change in resonance, fremitus, or percussion note. Is to take two teaspoonfuls of cocillaña every six hours.

15th.—Can only find a few moist râles. Vocal resonance and percussion note normal. Has experienced great relief.

CASE II.—*November 18th.*—F. N., twenty-nine years old. Two years ago suffered from a severe attack of acute bronchitis which lasted for two months, and in which expectoration could not be established by apomorphine, ipecac, lobelia, or any other of the so-called expectorants. For the last week has had a severe cough with wheezing, no expectoration, loss of sleep and rest, with pain in the epigastric region. Physical examination shows slight dullness and distant respiration at the right apex, whispering bronchophony and high-pitched inspiration, increased vocal resonance at both apices to the third rib. Respiration is jerky. Many fine, dry râles, with some mucous râles. Ordered to take two teaspoonfuls of cocillaña every four hours.

22d.—Reports great improvement in the amount and character of the cough. Physical signs of infiltration and exudative pleuritis of the right apex remain.

December 13th.—Reports that cocillaña gives him entire relief from the paroxysms of cough.

It is probable that in subacute and chronic dry bronchitis we find the larger field for the use of cocillaña. The facts are that its expectorant effect is surer than that of either apomorphine or ipecacuanha in liquefying bronchial mucus; that it increases the appetite, not because the drug itself acts like a simple bitter or its menstruum (alcohol) irritates the stomach, for the fluid extract is equally reliable in that direction; and that the drug is a laxative, perhaps by stimulation of the intestinal muciparous glands. Further, the expectoration is not so much influenced by warm diluent drinks as that of apomorphine, ipecacuanha, or carbonate of ammonium is, although cocillaña itself will produce a slight perspiration. In chronic bronchitis with viscid expectoration cocillaña will render the sputum liquid somewhat more surely than ipecac, and it has the further advantage of not causing nausea. At times also the formation of mucus seems to be checked.

On the other hand, in cases of senile bronchitis, particularly in cases of calcified costal cartilages, it may so markedly add to the bronchorrhœa that it becomes absolutely dangerous, and particularly because it is not a stimulant to the respiratory center, like belladonna and strychnine. In these cases, then, it is useful only so far as it liquefies secretion. It is in these cases, and particularly those with dilated right heart, that we find strychnine and carbonate of ammonium so useful. Cocillaña is not an antiseptic any more than ipecacuanha, so in cases of foul expectoration neither drug is a complete remedy.

CASES OF CHRONIC DISEASE OF PULMONARY TISSUES.—CASE I.—*November 15th.*—Mrs. G., thirty-four years old, has suffered from cough, with slight morning expectoration and loss of flesh and appetite, for six months. Physical examination shows a

chest contracted in the antero-posterior diameter, dull to the bottom of the second rib at both apices, over which area there is increased vocal resonance, with whispering bronchophony, harsh, prolonged inspiration, and many crepitant râles. The cough is teasing and prevents sleep. Ordered a teaspoonful of cocillaña to be administered every three hours.

20th.—Reports improvement in the cough and appetite. Physical signs unchanged.

CASE II.—*May 27th.*—Miss M. D., single, twenty-one years old. Has been ill for three months. She complains of pain in the left side, and cough, which was dry until recently, especially on sitting up. No expectoration except in the morning. Is losing flesh, has a poor appetite, with regular bowels, but occasional headaches. At the right apex there are sibilant and sonorous râles, also over the upper chest to the fourth rib, with roughened, high-pitched respiration. Over the left apex there is roughened inspiration with fewer râles, vocal resonance increased over the right area, in which there is marked dullness, with no increase on the left side. Pain in the left axillary region. Directed to take two drachms of cocillaña three times daily.

June 10th.—Expectoration quite profuse, coughing less, but she feels weak on rising, sometimes nauseated. The dry râles have now disappeared, but we find abundant coarse and fine râles, especially on the right side. The acute exacerbation is apparently relieved.

November 11th.—Reports great improvement. The medicine will relieve the teasing cough, changing it into one which is less frequent and which yields frothy expectoration.

CASE III.—*July 3d.*—P. M. K., twenty years old, has had night-sweats for five months, with loss of flesh, but until within two weeks has had no noticeable cough. Complains of lassitude and anorexia. For the last two weeks has had a cough which does not produce expectoration save in the morning, when it is muco-purulent. He is very anæmic. At the right apex, extending to the third rib, there are dullness, normal fremitus, and increased vocal resonance. Quality of respiration not markedly changed. Subcrepitant râles at the right apex. Elsewhere large mucous râles. Temperature, 101° F. at 3 P. M.; pulse, 120. He was ordered to take half a drachm of cocillaña three times daily.

8th.—Cough loose and less frequent; appetite better and night-sweating markedly diminished.

24th.—Appetite is now good. Expectoration markedly increased. No cough. Bowels regular.

CASE IV.—*November 11th.*—Mrs. K., thirty-seven years old, has suffered from asthmatic attacks, dyspnoea on exertion, and cough with tenacious expectoration for a year. The physical signs are dullness at the right apex, extending downward as far as the third rib; high-pitched, prolonged inspiration and expiration; increased vocal resonance. A few coarse and many fine râles. Is to take a teaspoonful of cocillaña every two hours.

13th.—Reports considerable relief. Physical examination shows a cavity emptied of pus, the signs being a vesiculotympanic percussion-note over the former area of dullness, amphoric respiration, bronchophony, and coarse mucous râles. The dyspnoea has disappeared with the rapid expectoration of a large amount of pus. The asthma has remained absent.

In these cases cocillaña has almost its only use in liquefying secretion and relieving the acute exacerbations of associated chronic bronchitis. Under its use the cough and expectoration diminish, and the night-sweats, inappetence, and constipation are relieved. In general, for the reasons given above in discussing chronic bronchitis, cocilla-

ña is preferable to ipecacuanha. Naturally, when cough is due to pleuritic exudation or is laryngeal or pharyngeal, cocillaña will fail, as will all the other expectorants. In the latter instances, I doubt if local applications of cocillaña would be effectual.

I believe cocillaña to be superior to apomorphine except in the cases of acute bronchitis when taken within the first forty-eight hours. It is certainly preferable to ipecacuanha in that it does not so readily cause nausea and a metallic taste in the mouth, and assists the regular movement of the bowels. It must yield to carbonate of ammonium in chronic senile bronchitis, although the heart beat and the pulse become stronger under its use, and it can not stimulate the respiratory center as strychnine does. It is immeasurably safer in any stage of acute bronchitis than pilocarpine, because it does not depress the heart's action.

In conclusion, I believe that it can fully replace ipecacuanha, which is now becoming expensive from exhaustion of the supply, in every sphere of action, and in many cases can be substituted with advantage for apomorphine, carbonate of ammonium, strychnine, and other drugs classed with more or less reason as expectorants.

690 MADISON AVENUE, December 14, 1889.

THE RELATIONS OF THE SO-CALLED
"CHRISTIAN SCIENCE CURE" AND "FAITH CURE"
TO PUBLIC HEALTH AND BOARDS OF HEALTH, AND TO
THE MEDICAL PROFESSION.*
BY J. C. BIERWIRTH, M. D.,
BROOKLYN.

THE advocates of Christian science cure and of faith cure have existed in all ages and in all countries, and have belonged to all religions. Being the children of superstition, they have kept pace with their parent, and their number has become less as the world has become more and more enlightened. But yet from time to time they seem to increase in strength and numbers, and the daily papers relate the wondrous cures achieved in apparently hopeless cases. Some one of a highly emotional nature imagines himself to have been "cured" by the agency of prayer, and he loudly proclaims the result. This draws others, for the number of real or supposed chronic sufferers is large at all times, and, if then some further "cures" are effected, the sect flourishes for a time, until either the interest dies out or some one "cured" by prayer dies of the original malady. At times also these Christian scientists are made the dupes of some plausible scoundrel, who coins money from their superstitions by the aid of "magnetism," mesmerism, or anything else which tends toward a concentration of the mind. When the fraud is discovered we hear no more of faith-healers for a while.

Within the last ten years the daily papers have contained more recitals than usual of miraculous cures by the aid of prayer, anointing, or laying on of hands. In a few instances, where a fatal result followed, the authorities have

stepped in and investigated the circumstances, but I am not aware of any conviction or punishment inflicted.

It is somewhat difficult to define accurately the exact position of these people, but for the purpose of this paper it will suffice to state that they do not believe in physicians and their medicines, relying in case of illness upon faith in the efficacy of prayer to bring about a cure. The different sects and societies vary a good deal with regard to the sincerity of their belief and the degree to which they adhere to it. Some only invoke divine help when there is no danger to life, but they will send for a doctor as soon as there seems to be a real or supposed danger approaching. Others, however, are more consistent. They will refuse medical aid and medicines under all circumstances, preferring death to any help which medical skill might afford them. Their only guide is the Bible, and their only relief from suffering must come through prayer.

Recently, in my official capacity as physician to the Brooklyn Society for the Prevention of Cruelty to Children, I have come in contact with members of a sect of "faith-healers" calling themselves New Evangelists, who hold their meetings on Hamilton Avenue. They are mostly Scandinavians, all belong to the laboring classes, and are of less than average intelligence. Their faith is a most simple one, but in sincerity and strength they rival the religious fanatics of past ages. They do not believe in ministers of the Gospel, nor do they have any leaders. Their meetings are conducted much after the manner of Quakers—*i. e.*, any one who has a communication to make gets up and speaks. They also unite in common prayer and singing. For information on everything they turn to the Bible, whose teachings they interpret to the best of their ability and understanding. They do not believe in medicines and physicians, and positively refuse medical aid. The reason which they assign for this refusal is that all disease is sent by God either as punishment or trial, and it would be a sin to interfere with His will by any attempt to relieve the suffering or cure the illness. If the person afflicted dies they say it was God's will, and should recovery ensue, this again will be regarded as a manifestation of divine Providence. They believe in caring for the sick by looking after their bodily welfare and by keeping them properly fed and clean. Among their number there are a few nurses who go out among the sick and attend them, and who profess to have had experience in hospitals here and at home. For these services they expect no pay, but they receive food and clothing from their "brothers and sisters in Christ." The members of this sect also do not believe in holding property or keeping any money beyond that which they need for their daily wants. All their possessions go into a general fund, out of which all expenses for the society are paid and the poor and sick assisted. One of their number, before he became a member, bought two city lots, on which he paid one hundred and fifty dollars—all his savings. After he joined, as he could no longer consistently hold property, he wished the real-estate agent to take back the land and refund the money; the latter refused to grant his request, and he then told him to keep both the land and the money.

I am of the opinion that these people are entirely sin-

* Read before the Kings County Medical Association, December 13, 1889.

cere and honest in their belief, but I am equally certain that their practices endanger public health and public morals, as will be seen from the histories of the following two cases:

CASE I.—On November 29th the Superintendent of the Brooklyn Society for the Prevention of Cruelty to Children consulted me in regard to a case reported to him by the Board of Health, the facts in regard to which were as follows: On November 27th Dr. Prendergast, of Clinton Street, was called upon by O. E. Larsen, of 43 Woodhull Street, to see his child, who had been ill with a sore throat for a week. The doctor went as requested, and found a little girl four years old suffering from diphtheria. He prescribed for the patient, and returned the next morning to find the child much worse in every way. Upon asking whether the medicines ordered had been properly administered, the father informed him that "it was no use to give the child any medicine; she was God's child and in His hands; that if He intended her to recover she would get well without medicine, and if she should die it was His will." He then refused to send for the medicine or administer it. The doctor thereupon left, telling Larsen he would have nothing further to do with the case, and reported it to the Board of Health. The authorities here told him that they had no jurisdiction in the matter and could not force medical attendance upon any one, but they would send word to the Society for the Prevention of Cruelty to Children.

At the request of the society I then went to the residence of Larsen, where I was informed by him that neither he nor his wife would give the child medicine, for the reasons stated to Dr. Prendergast. He furthermore told me that he had called in the latter only to comply with the regulations of the Board of Health, which provide that medical attendance shall have been given at least twenty-four hours before death in order to obtain a death certificate from the physician in charge, and not for the purpose of treating the child. He had no objection to my seeing the child, whom I found very ill indeed; the breathing was labored and stridulous, the voice reduced to a whisper, and the appearance of the little patient certainly alarming. It was evident that the membrane had extended to the larynx, which was not the case when Dr. Prendergast saw the patient the last time. I did not make any examination of the child's throat. The next morning I made inquiries at the Board of Health as to their power of interference, and was informed by the deputy commissioner, Dr. Young, that the department had no jurisdiction in the case. The same answer was obtained at the office of the Commissioners of Charities and Corrections. I next went to the office of the District Attorney, where I was informed that the offenders could be arrested and prosecuted under Sections 288 and 289 of the Penal Code, as had been suggested by the superintendent of the society. On the afternoon of this day, Saturday, November 29th, the father was arrested, but it was thought best to try and keep the mother at the house to look after her other child, an infant twenty months old. I then took forcible possession of the sick child, placing her in charge of two trained nurses, one for the day and one for the night, and assumed medical attendance myself. I prescribed the necessary medicines and instructed the nurses to report to the nearest police precinct any interference on the part of the mother or any one else. Upon my next visit later in the evening, I found that my orders had all been carried out, and had met with no opposition.

The following day I had the first chance to thoroughly examine my little patient, and found a much graver condition of affairs than I had at first supposed. Her tonsils, uvula, palate, both nostrils, and vault of the pharynx were covered with membrane, the breathing was very labored and stridulous, the whole chest and abdomen heaving in the effort to get sufficient air, and

the voice was almost entirely lost, making it certain that the membrane had also invaded the larynx. In addition to the diphtheria I also found the child suffering from scarlet fever. Her temperature was 103.5° F.; pulse 138, intermittent and very weak; respirations 58. The mother told me that the patient had received but very little nourishment in the past week—not more than about eight ounces of milk in twenty-four hours, and nothing else; it had been impossible to give her more, because it hurt her so much to swallow. On the second day of my attendance I examined the urine, and found the kidneys also involved. The improvement of the child was evident after the first twenty-four hours of treatment, and, I am happy to say, has continued uninterruptedly up to the present writing. All evidences of diphtheria have disappeared, the temperature and pulse are normal, the condition of the kidneys is steadily improving, and, barring accidents and complications, I think she will make a good recovery from the scarlet fever and the accompanying kidney lesion.

On December 7th, a week after my first visit, the baby, a girl twenty months old, was also taken ill; temperature 103.5°, pulse 160. Upon examining the throat, I found her also suffering from diphtheria, and placed her at once under the care of the nurses without meeting with a protest from the mother. In this case the tonsils only are involved, and she is much improved to-day (December 12th); temperature 98.5°, pulse 120, and the membrane looks as if it would be shed in a day or two.

CASE II.—A man by the name of Jansen called at my office, Saturday, December 7th, and asked me to call and see his sick baby, who he thought was suffering from scarlet fever, telling me, however, that he did not believe in medicines. When I asked him if he would give the medicines prescribed, he said he would not, nor would his wife, who was also sick with a sore throat. He furthermore stated that he only called me in because I had charge of the cases at Larsen's, and in order to satisfy the regulations of the Health Board in regard to a death certificate in case this should be needed. I called his attention to the existing laws, which he was violating by refusing medical aid to his child, and pointed out the probable punishment in store for him. But, of course, this all had no influence upon him, and he gave the same answer to all my objections—namely, that he was in God's hands, who would take care of him.

I then reported the case to the society and proceeded to the man's house in company with an officer of the society. I found a child, six months old, suffering from scarlet fever, and also from a purulent eruption of the face and scalp. The mother, who submitted to an examination of her throat willingly, was suffering from diphtheria. Nursing these two patients were two women of the same sect, one of whom I had found in charge of the first case. She had been in the family of Jansen for a week, going there directly from Larsen's when I sent her away. It was on the seventh day after her arrival at Jansen's that the disease broke out there, the regular period of incubation in scarlet fever, and there is no doubt in my mind that she conveyed the disease from one to the other. It seemed to me that something should be done to destroy this source of infection, as the nurse might continue to spread the contagion among a large number of people, and with this view I called again upon the health authorities.

I stated my case to Dr. J. Griffin, the commissioner, who told me that I had been misinformed at my former visit, and that the Board of Health had the power to interfere in these cases on the ground that the public health was endangered. I expressed it as my opinion that both mother and child were in a condition to be transferred to the County Hospital at Flatbush, and requested him to do so if it met with his approval. He entirely coincided with my views, and promised to send an

inspector to the place at once, with instructions to remove the patients to Flatbush in case he found the conditions as represented by me, and the husband and wife still persisting in their refusal to accept medical aid. The inspector corroborated my statements, and removed both patients to the hospital late in the evening. He also placed the floor where the cases occurred under quarantine, and forbade Jansen and the two nurses to leave the house until the quarantine was raised. The next morning these three disobeyed this order by going to their place of meeting, which was crowded with adults and children, and consequently were arrested on the charge of endangering the public health.

These cases are of interest chiefly from their medico-legal aspect. The sections of the Penal Code under which the offenders will be prosecuted are as follows:

SECTION 288. A person who willfully omits, without lawful excuse, to perform a duty by law imposed upon him, to furnish food, clothing, shelter, or medical attendance to a minor, is guilty of a misdemeanor.

SEC. 289. A person who, having the custody of a minor, either—

1. Willfully causes or permits the minor's life to be endangered, or its health to be injured, or its morals to become depraved; or—

2. Willfully causes or permits the minor to be placed in such an occupation that its life is endangered, or its health is likely to be injured, or its morals likely to be impaired;

Is guilty of a misdemeanor.

SEC. 675. A person who willfully and wrongfully commits any act which seriously injures the person or property of another, or which seriously disturbs or endangers the public peace or health, or which openly outrages public decency, for which no other punishment is expressly prescribed by this code, is guilty of a misdemeanor.

Among the city ordinances relating to the Department of Health the following two sections are also applicable to the cases under consideration:

SECTION 8. That no person shall carelessly or negligently do, or advise, or contribute to the doing of any act or thing dangerous or detrimental to the health of any human being; nor shall any person knowingly do, or advise, or contribute to the doing of any such act or thing not actually authorized by law except with justifiable motives and for adequate reasons; nor shall any person omit to do any act, or to take any precaution reasonable and proper, to prevent or remove danger or detriment to the life or health of any human being.

SEC. 140. That no person shall within the built-up portions of the city, without the permit of this board, carry or remove from one building to another, or from any vessel to the shore, any person sick of any contagious disease. Nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect of the care or custody thereof, or by a needless exposure of himself, cause or contribute to or promote the spread of disease from any such person, or from any dead body.

Any one violating these sections of the Penal Code and of the city ordinances is guilty of a misdemeanor, the extreme penalty for which is imprisonment for one year and a fine of five hundred dollars.

In the event of a fatal termination resulting in the case of a child the parents are guilty of manslaughter. The

English courts in the case *Reg. vs. Downes*, 13 "Cox's Cr. Ca.," 111, held that "It is no answer to the charge of manslaughter that the parent so neglected from a conscientious religious belief that it was wrong to call in medical aid, and that medical aid was not required, and not from any intention to disobey the law."

From these quotations it will be seen that the provisions of the law are ample to reach at least some of the wrongdoings of these religious fanatics. In every case where a child is concerned, the Sections 288 and 289 are sufficient to bring the offenders within the reach of the law, and when the case is one of a contagious disease in either a child or an adult the boards of health of this State have the power to interfere and compel medical care and attendance. If all the cases belonging to these two classes, which may come to any one's notice, are reported to the proper authorities, the believers in faith and prayer as a panacea for all ills will receive a wholesome check. I believe it is useless to attempt a reform in the present adherents to the faith cure; they are deaf to all reason and logic, and will continue to be guided only by their superstitions. But the legal interference in their practices and a few severe punishments will frighten off new-comers, and thus we may hope to prevent an increase in their number. Those who may be punished will be strengthened in their belief and regard themselves as martyrs of their cause, as were Christ and His apostles, whose lives these fatalists try to emulate. As I stated before, I believe they are honest and sincere in their belief. Most of them are kind and peaceful, and it may seem that the punishments for their offenses are harsh and too severe. But, as they refuse to be taught, they must be treated as children and punished when they do wrong. The penalties inflicted can not be considered too severe when we regard for a moment the seriousness of their offense. Their practices create hot-beds for two of the most dangerous and fatal diseases of childhood, and add to the already too large number of cases of contagious diseases which are constantly occurring among the poorer classes and which are never attended by a physician. Many of the poorer people never think of sending for a physician in a case of measles or of sore throat (diphtheria), and not even in a case of scarlet fever; and I think in this fact is found, to a great extent, the explanation of the large number of cases of these diseases annually occurring. The members of families in which cases of contagious diseases exist mingle in the course of the day with a large number of people, both at school, in public conveyances, and in their crowded tenements, and thus they may produce a large number of new cases.

The cases cited here have pointed significantly to the good work that is being done by the societies for the prevention of cruelty to children. Had it not been for the existence of our local society, these cases would have passed unnoticed, as has been shown by the difficulties experienced to find the proper authorities who would take action in the matter. The chief trouble was that no precedent existed, but now that this has been established, future cases, if discovered, will encounter no difficulties.

From this recital it appears that medical men will

be called in only to furnish death certificates, when these seem likely to be needed, and it will be only in this way that cases will come to public notice. I would suggest to the members of this association to disseminate widely the facts presented in this communication, and to report to the proper authorities any cases which may come to their notice. They will thus not only promote public health, but aid greatly in preventing the spread of harmful superstitions and fanatical beliefs.

NOTE.—Since the reading of this paper the cases have come up for trial before Police Justice J. G. Tighe, who found all the defendants guilty, and imposed the following sentences: Larsen, to pay a fine of \$500 or stand committed one day for each dollar; Jansen, \$200 fine or imprisonment; Maria Peterson, \$100 fine or imprisonment; Anna Jensen (the nurse who was first at Larsen's), \$150 fine or imprisonment.

A CASE OF ACTINOMYCOSIS IN MAN.*

By J. M. BYRON, M. D.,

DIRECTOR OF THE BACTERIOLOGICAL LABORATORY OF THE
UNIVERSITY OF THE CITY OF NEW YORK.

THE case which I present to the society to-day is one of actinomycosis in man. I am unable to relate a complete history of it, for I understood its importance rather late. When I first saw the patient my diagnosis was different from that made later—after I had examined the pus and found the characteristic fungus—the *Actinomyces bovis*.

This disease is not so rare as was once supposed. If relatively few cases have been observed, it is principally due to the difficulty of diagnosis and a symptomatology that makes it resemble a great deal other diseases, principally peripleuritis and empyema.

The *Actinomyces bovis* was first described by Böllinger, in 1876, who described it as the cause of a special disease in the bovine species. Israel, in 1878, found it in man. After Israel, Bizzozero, of Italy, made a very accurate study of the disease, and in a very short time had the opportunity of observing thirteen cases.

The fungus was successfully cultivated for the first time by Oscar Israel, in coagulated blood serum, and afterward by others and by myself in different media—such as potatoes, sweet agar-agar, etc. The growth is very slow, and from four to seven weeks elapse before any noticeable portion of it can be seen. The best temperature is about 37° C. It forms on potatoes small, round lumps, of a yellowish-white color, resembling very much colonies of tubercle bacilli on the same media. It is inoculable, and the animals inoculated are fatally attacked by the disease.

The lesions produced by the actinomyces vary a great deal, from the production of pus to the formation of a neoplasm; but all of them bear a striking resemblance to those of tuberculosis.

The symptomatology is variable, according to localization. It may produce exactly the same lesions and symptoms of an ordinary tuberculosis of the lung as a prevertebral abscess, an empyema, or a cold abscess, etc. In all cases a careful microscopic examination of the products

offers the only means of formulating a correct diagnosis and directing a proper treatment.

The patient whose case is presented in this paper came to me about the last days of last June, complaining of a pain in his right side. He was a young man of twenty-eight, strong, and had always been healthy. No family history either of syphilis or of any other diathetic condition. About a month before coming to me he had chills and after-fever, symptoms that have ever since continued. On percussion I found a limited dullness extending for about four inches square, from the fifth to the seventh rib, between the anterior and the posterior axillary lines. There was no deformity of the chest. Auscultation showed diminished vesicular murmur, a few very fine râles, and a pleuritic friction. My diagnosis was that of lobular pneumonia and pleurisy. I ordered him to bed, and gave him some stimulants. I did not hear from him for more than two weeks, when I found his condition worse. In the place of dullness I could see now the intercostal spaces rather prominent and œdematous. I made a puncture and obtained pus. When the patient heard that an operation had to be performed in order to extract the pus, he refused and went away for another fortnight, to return again. He had been to several other physicians, who pronounced it a case of empyema. Examining the pus which I extracted with an aspirator, my suspicions were awakened by its peculiar appearance; it contained very minute lumps, like grains of sand, which made me immediately think it a case of actinomycosis or, better, a case of *peripleuritis actinomycotica*, and the microscope confirmed my suspicions. The pus contained millions of the fungi. The treatment had to be changed accordingly. I proposed an operation, which was permitted, and performed on the 23d or 24th of July last. I extracted a piece of the seventh rib, and then scraped and drained the cavity; but, notwithstanding this, the suppuration continued, and the man, fearing his end was near, sailed to his native country, hoping to find there better opportunities of recovery.

As I stated when beginning, this is not a complete clinical history of such an important case, but I confess it was due to my mistake in diagnosis. Had I examined the pus at first, as I usually do in every case that comes under treatment, I should have to-day the pleasure of submitting to you something worth your attention.

Actinomycosis is a new disease and is an infectious disease, the symptoms of which are, as I have stated, similar to those of other diseases, and probably a great many cases of it pass under other names.

When localized it is not difficult to treat it with success, but if the internal organs are invaded by the germs it is as fatal as tuberculosis. The only way to avoid its spreading is to destroy all animals that are diseased. An examination of the slaughter-houses by intelligent men, who will report every case of actinomycosis in the cattle, is absolutely necessary in this and other diseases that seem to have been transferred to man from the lower animals.

Transmission of Disease by Brushes and Dental Instruments.—“A discussion recently took place at the Conseil d'hygiène concerning the transmission of certain diseases by hair-dressers and dentists, the brushes and instruments being used in common for all their clients. M. Lancereaux wished to have stringent measures enforced, and cited a case of phthisis which Dr. Cochrane, an American dentist, alleged was transmitted by a dentist's instrument. M. Dujardin-Beaumetz and others declared that there were great difficulties in the way, but recommended great care in schools and public institutions.”—*Brit. Med. Jour.*

* Read before the Society of the Alumni of Bellevue Hospital, October 2, 1889.

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ELECTRIC CATAPHORESIS AS A THERAPEUTIC MEASURE.

IN an article with this title published in our issue for April 27, 1889, one of our contributors, Dr. Frederick Peterson, described some of the results obtained by him in the use of cocaine, aconitine, chloroform, and helleborin, in varying solutions, with the galvanic anode. His experiments demonstrated the value of the cataphoretic method for the production of local anæsthesia and for the relief of pain in neuralgias of the superficial nerves. He suggested its employment with other drugs, such as iodine, whenever it was desirable to use them topically, or where they were to be introduced into the system for general purposes.

The growing recognition of this method is illustrated by two recent contributions to the literature of the subject. One is a preliminary report made by Dr. Gärtner and Dr. Ehrmann to the Imperial-Royal Society of Physicians of Vienna, on November 22, 1889 (*Wiener med. Blätter*, Nov. 28, 1889), upon the cataphoretic use of corrosive sublimate. An electric bath-tub with two compartments, invented by Dr. Gärtner, was employed for the purpose. From four to six grammes of corrosive sublimate were dissolved in the water of the bath and a current of 100 milliampères was passed through the person experimented upon for from fifteen to twenty minutes. The urine of the patient was examined both before and after the bath. It was shown that, while previously entirely free from mercury, the urine subsequently contained this metal in as large a quantity as 1.3 milligramme, and, furthermore, that the mercury was to be detected for even so long as from four to six days after the bath. The authors expect good results on the grounds that it is an efficacious method of cutaneous mercurial medication, that the receptive surface presented to the drug is much larger than by any other means, that mercury may thus be made to influence localized morbid foci, and that exact dosage is possible, since the introduction of the medicament is in exact proportion to the current strength and duration of contact.

At a meeting of the Harveian Society in London, on November 7, 1889 (*Brit. Med. Journal*, Nov. 16, 1889), Dr. Cagney read a paper on the administration of certain drugs by electricity. He had made use of iodide of potassium in this way for the treatment of labyrinthine deafness and lead palsy. He speaks of the method as best adapted to the treatment of local disease of the skin and mucous membranes and subjacent tissues, and believes that iodine and the potassic iodide will be of particular value employed in this way. Cataphoresis had proved useful in syphilitic and other affections of the throat and especially in chronic pharyngitis.

This method, therefore, seems to present many advantages

in the way of medication, and is perhaps destined to take a very important position in the therapeutic procedures of the future. It opens a way not otherwise attainable for influencing tissue metabolism and for changing morbid nutritive processes by sending the drugs into direct and immediate contact with diseased parts through a force which in itself must greatly enhance their active medicinal properties.

MINOR PARAGRAPHS.

THE PRESBYTERIAN HOSPITAL.

THE accident that lately happened to this institution, whereby one of its buildings was partly destroyed by fire, seems likely to prove a blessing in disguise, for it is bringing before the public the resources and energy of the governing body, and it has demonstrated the intrepidity of the gentlemen of the house staff as well as their humanity and faithfulness to duty. When a citizen arrived in haste, under the supposition that he was the first to acquaint the house officers with the fact that a fire was in progress, he found them engaged in providing for the safety of the inmates, a task which, we are glad to be able to say, was accomplished without the slightest accident and with no approach to a panic. The very sensible course pursued by the medical house officers has met with due appreciation on the part of the governing body, and they, for their own part, have shown such energy that it was evident some days ago that comfortable quarters in the institution would be ready for a great number of patients by Thursday of this week. In short, the excellent management of the hospital has been made so manifest to the community that certain important additions in the way of new buildings are sure to be accomplished more speedily than they might have been without the occurrence of the fire, for it has been the means of bringing in notable additions to the funds.

THE VAGINAL SPECULUM AMONG THE ANCIENTS.

ACCORDING to the "*British Medical Journal*," Dr. Ali Cohen describes a passage in the Talmudic treatise called the *Niddah*, in which the physician is instructed to introduce a "siphopheroth" when in doubt whether a hæmorrhage is from the uterus or from the vagina. It is said that, on passing in a "mechl" (long wooden rod) covered with "mouch" (a preparation like charpie), the latter will be covered with blood if the hæmorrhage is uterine. The "siphopheroth" was a leaden cone, its orifice bent inward, in order not to wound the vagina. The name of the instrument is manifestly of Greek origin, but the evidence is inconclusive that it was actually employed to inspect the cervix.

RICORD'S MEMOIRS.

THE memoirs of Ricord's life and professional career are said to have been left in a good state of preparation for the printer. They will bear the striking title of "*The Nineteenth Century seen with the Speculum*."

"ACCIDENTAL DEATH" BY FOOTBALL.

THE "*British Medical Journal*" insists that new rules should be framed for the game of football. In the "*Journal*" for December 7th the death of a theological student from fracture of the spine is recorded as consequent upon a scrimmage in that game, and it is stated that a coroner's jury returned a verdict of "accidental death." About the same time a man had his leg

broken and was otherwise injured in the course of regular play. He escaped an "accidental death," but he has probably played his last game. The reports of football matches in England are continually affording fresh evidence that the existing rules of play must be amended.

"JUMPERS" IN SOUTH AFRICA.

DR. BENNETT, of Griqualand, writes to the "South African Journal" that a nervous affection is met with among the natives closely resembling that which the late Dr. G. M. Beard described as observed among the French Canadians who are known as "jumpers." The involuntary activity in the African victims to this affection is incited by the sharp word of command or sudden exclamation by some one near at hand, very much as in the case of those among the Canadians. All the cases observed by Dr. Bennett were in males.

SEXUAL DEBAUCHERY AND SEXUAL PERVERSION.

AN esteemed correspondent, who desires that his name should not be mentioned in the matter, expresses his appreciation of Dr. Holder's article on "The Bote," lately published by us, but points out the injustice of including sexual perverts with sexual debauchees, for the former are born with defects that impel them to repulsive practices, while the latter adopt them deliberately. Our correspondent expects to be able some time to publish some autobiographical notes by a pervert whom he describes as "a cultivated gentleman," and he thinks they will be of much literary and professional interest.

ITEMS, ETC.

Infectious Diseases in New York.—We are indebted to the Sanitary Bureau of the Health Department for the following statement of cases and deaths reported during the two weeks ending December 24, 1889:

DISEASES.	Week ending Dec. 17.		Week ending Dec. 24.	
	Cases.	Deaths.	Cases.	Deaths.
Typhoid fever.....	21	5	14	2
Scarlet fever.....	71	5	57	6
Cerebro-spinal meningitis....	1	1	0	0
Measles.....	70	2	43	6
Diphtheria.....	109	30	99	16
Varicella.....	1	0	8	0
Influenza.....	0	0	7	0

Army Intelligence.—Official List of Changes in the Stations and Duties of Officers serving in the Medical Department, United States Army, from December 15 to December 21, 1889.

ALEXANDER, CHARLES T., Lieutenant-Colonel and Surgeon, will be relieved from duty as medical director, Department of the Columbia, on receipt of this order at the headquarters of that department, by direction of the Secretary of War, and will report in person to the commanding general, Division of the Atlantic, for the purpose of preparing for and becoming familiar with the duties of attending surgeon in New York city. He will also, upon his arrival in New York, assume the duties of examiner of recruits in that city.

WATERS, WILLIAM E., Major and Surgeon, will take temporary charge of the office of medical director, Department of the Columbia, upon the relief of Lieutenant-Colonel Alexander, and perform the duties pertaining thereto. S. O. 291, A. G. O., Washington, December 14, 1889.

MACAULEY, C. N. B., Captain and Assistant Surgeon. With the approval of the Secretary of War, the leave of absence granted in S. O. 166, November 8th, Department of the Missouri, is extended one month. Par. 10, S. O. 294, A. G. O., December 18, 1889.

ROBINSON, SAMUEL Q., Captain and Assistant Surgeon (Fort Hamilton, New York Harbor), will proceed without delay to Fort Warren, Massachusetts, and report to the post commander for temporary duty. Par. 5, S. O. 289, Division of the Atlantic. December 18, 1889.

MC CREERY, GEORGE, Captain and Assistant Surgeon (Fort Warren, Massachusetts), is granted leave of absence for one month, to take effect upon the arrival at that post for temporary duty of Captain Samuel Q. Robinson, Assistant Surgeon. Par. 6, S. O. 289, Division of the Atlantic, December 18, 1889.

BALL, R. R., First Lieutenant and Assistant Surgeon, is relieved from temporary duty at Fort Sill, Indian Territory, and will return to his proper station, Fort Riley, Kansas. S. O. 182, Head-quarters Department of the Missouri, Fort Leavenworth, Kansas, December 12, 1889.

Naval Intelligence.—Official List of Changes in the Medical Corps of the United States Navy for the week ending December 21, 1889:

KITE, J. W., Assistant Surgeon. Promoted to be a passed assistant surgeon.

STONE, E. P., Assistant Surgeon. Promoted to be a passed assistant surgeon.

NORTON, O. D., Assistant Surgeon. Promoted to be a passed assistant surgeon.

HENRY, CHARLES P., Assistant Surgeon. Placed on the retired list.

PICKERELL, GEORGE McC., Assistant Surgeon. Ordered to Navy Yard, Washington, D. C., for temporary duty.

Letters to the Editor.

A SWINDLER.

230 WEST 135TH STREET, NEW YORK, December 20, 1889.

To the Editor of the New York Medical Journal:

SIR: It may be of service to some of the profession if you would print a notice warning them of the rascal who visited my office to-day. Pretending to represent his brother, who he said was a patient of mine whom I had advised to go south, he requested a receipt and tendered a check for \$35, the supposed bill amounting to \$20. Now, he had evidently posted himself in regard to some of my affairs, and watched the house to be sure of my absence, when the only members of the family in were females. I learned afterward that he had been seen loitering around during the early part of the day. Having only ladies to deal with, and pretending to be very anxious to settle the bill before they left the city, he very nearly accomplished his purpose. He is tall, thin, middle-aged; hair very dark and very slightly tinged with gray, and thin almost to baldness on the top of the head; face long and thin; eyes black; a grayish mustache, whiskers, and beard which is parted in the middle and brushed to either side; wore a pepper-and salt business suit, no overcoat, and a black Derby hat.

H. SCHROEDER, M. D.

POISONING BY ILLUMINATING GAS.

1519 JOHN STREET, BALTIMORE, December 17, 1889.

To the Editor of the New York Medical Journal:

SIR: I scarcely know whether to notice the obscure imputations in the article on "Poisoning by Illuminating Gas," by a Dr. Crossland, in your issue of the 14th inst., or to let them pass.

The doctor speaks of "false impressions contained in Dr. Kroman's article," the meaning of which I am too obtuse to decipher. A writer may want to create false impressions, but how they can be "contained in an article" is too much for me. Again, the doctor accepts my statement in regard to the percentage of carbon monoxide in one paragraph, and in the very next says the "comparative amounts do not seem in accord." Nor does he define his meaning of these, to me, obscure observations. However, the doctor agrees with my idea that treatment by nitroglycerin is "the remedy par excellence." The idea just now occurs to me that perhaps the doctor may wish to state that I was not the first person to suggest or use this treatment. This may be so, but, if so, I am unaware who mentioned or used it earlier, and shall be very glad to be informed. The doctor seems to have had a very unreliable preparation of nitroglycerin on hand, judging by the effect. Tablets for hypodermic use are far more reliable than solutions.

WILLIAM C. KLOMAN, M. D.

Proceedings of Societies.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN LARYNGOLOGY AND RHINOLOGY.

Meeting of November 26, 1889.

Dr. CLARENCE C. RICE in the Chair.

A Laryngeal Growth.—Dr. J. H. BILLINGS referred to the case of laryngeal growth presented at the previous meeting. The patient, three days afterward, had been taken to the hospital. It would be remembered that much uncertainty had surrounded the case and a diagnosis had been withheld pending treatment for an assumed specific origin to the growth. It would also be recollected that the growth had already threatened the patient's life. At the hospital he had been put upon large doses of iodide of potassium. The stenosis had become so great that tracheotomy was resorted to. After the tube was inserted the iodide was vigorously pushed. The neoplasm had then begun to get smaller and the patient was again present, so that those who had examined him previously might observe the result of the specific treatment.

Papilloma of the Vocal Cord.—Dr. S. SHERWELL, of Brooklyn, cited the case of a young girl with papilloma of the left vocal cord. She had been put under treatment which had proved more or less ineffective. The tumor had commenced to grow larger. Spasm had occurred now and then. Treatment by insufflation of salicylic acid and sugar of milk, though it did not reduce the bulk of the tumor, had seemed to render it softer. Another physician, who was attending to the above-named treatment, had happened one day last week to pass a closed forceps into the throat. Spasm had immediately resulted with the apparent effect of drawing the tumor down until suffocation became imminent. The speaker was hurriedly summoned and had found the child *in articulo mortis*. Though no time was lost in making an incision into the trachea, the patient was to all intents and purposes dead. Ten minutes elapsed after the tube was inserted before any perceptible breathing occurred. A few days later thyroectomy was performed and the tumor removed. In bulk it was about one cubic inch. The patient had so far progressed nicely. Her vocal cords were open and there was a good lumen, with a fairly hoarse whisper. He had not removed the tracheotomy tube, but had withdrawn the inner tube to allow all the ingress of air possible.

A New Inhaling Apparatus.—Dr. J. W. GLEITSMANN demonstrated the working of a new inhaling apparatus, invented by Dr. Jahr, of Europe. The apparatus had been used during the past year in Bavaria. The principal point made in favor of the contrivance was that its internal arrangements were such as would allow of the delivery of a spray or vapor at any desired temperature. It could also be used for medicated solutions and volatile substances, and dry or moist air.

Dr. B. ROBINSON said that the apparatus seemed to fill all possible requirements. His experience had led him to think that warm-air inhalations, though of undoubted advantage, should be used with extreme caution from the liability of the patients to suffer from subsequent atmospheric changes. He thought that the profession at large should be made aware of this danger, and patients, after receiving vapor inhalations, should be warned to be extremely careful.

Dr. J. M. W. KITCHEN said that he could corroborate what Dr. Robinson had said as to the danger following warm inhalations. He was in the habit of following these up immediately by cold water spray, and this obviated the difficulty and enabled patients to go out without danger from the atmospheric change.

The Indiscriminate Use of Cocaine.—Dr. H. HOLBROOK CURTIS read a paper on this subject. He said that the long-predicted reaction against cocaine had finally assumed definite proportions, and the journals were plentifully supplied with cases of cocaine habit and cocaine poisoning. Little stress had, however, been laid upon the more important question as to the responsibility involved in prescribing small doses of cocaine for acute coryzas and for the relief of conditions of nose and throat in which the discomfort was but slight and other remedies nearly as efficacious. Two years had elapsed since the writer had reported several cases of stoppage of the nostrils due to the continued use of a cocaine spray, and the consequent alteration of nasal function and nutrition. Such conditions, then a rarity, had been so frequently encountered of late that he was prompted to sound a note of warning to the profession in general and join in the hue and cry against a drug so insidious in its captivating allurements, so instantly relieving, but from whose bondage it was so difficult to become freed. The cocaine habit had already a full literature, but the number of cases in which poisonous symptoms had occurred from even minute doses would be surprising to many who had become overconfident in their estimation of the drug. In a paper read before the Ninth International Medical Congress, the writer believed that he was the first to recognize that the continued use of the drug by nasal atomization in very small quantity would produce a nasal stenosis and over-stimulation and contraction of the erectile plexus giving place eventually to permanent dilatation due to vaso-motor paresis. In this condition the nasal mucous membrane became dull-gray in color and presented an œdematous appearance; or it might, on the other hand, retain its normal color, but become tumefied, no longer contracting even upon the application of cocaine crystals, suggesting a transition to true hypertrophy by increase of the connective-tissue elements at the expense of the vascular. This was the picture now constantly presented to the rhinologist. Besides this, the constitutional symptoms deserved also special consideration. As regarded dose, there existed the greatest difference as to individual susceptibility. Some patients became affected with giddiness, exhilaration, and loss of muscular co-ordination when less than a grain of the drug had been absorbed in the nasal cavities. Other patients might tolerate ten grains without a symptom other than local anaesthesia. Tolerant of the drug increased with use; one patient under the writer's observation had used three ounces of a ten-per-cent. solution daily, with results as

below stated. As to how little of the drug we might employ and not produce harmful results, he was unprepared to say. Many persons were advised by their physicians to employ a two-per-cent. solution of cocaine, perhaps with camphor-water, for the relief of an acute coryza, or to overcome the feeling of oppression caused by congested turbinated bodies. The effect was immediate, and the feeling of relief was attributed entirely to the free passage of air through the nose by reason of contraction of the erectile tissue. Unfortunately, this was but the smallest element of their satisfaction, for the increased mental activity, the elevation of spirits, the quickening of circulation, and general exhilaration were due directly to the effect of the drug itself, and a continuance of the custom would inevitably lead to the dire results that we were to-day becoming too well acquainted with. The profession could not become too quickly impressed with the fact that the indiscriminate use of cocaine among the laity threatened to introduce, and he might say already had introduced, a condition which might be designated as *cocaine heart*, the symptoms of which were a feeling of fullness in the præcordial region on rising in the morning, flashes of pain, and consciousness of the possession of a heart. This paræsthetic condition persisted almost constantly, but was accentuated directly after using the drug. Then followed in a short time palpitation and enfeebled action, the result of enervation of the sympathetic nervous system. Aside from this cardiac complication there were observed great restlessness and increasing prostration; the patient became pale, sallow, and mentally dejected; to remedy this condition the dose of the drug was increased, and alcohol and tobacco were usually indulged in to excess. This condition, together with the resulting nasal stenosis, generally brought the patient to the office of the specialist. He had encountered many such patients recently in whom the habit had been the outcome of using a spray of a weak cocaine solution to relieve an acute coryza or a passive hyperæmia of the nostrils. In the cases, some seventy of which had been collected as typical, he had endeavored to show the symptomatology, and more especially to demonstrate the peculiar susceptibility of certain individuals to poisonous effects from small doses of cocaine, as well as to cite instances of marked toleration of the drug. In a history of over five hundred cases in which he had used cocaine in the nasal cavities—an average of three grains left *in situ* on a pledget of absorbent cotton for ten minutes previous to operation—he had observed faintness in about one in five; but it was difficult to distinguish the cocaine symptoms from those of shock from the operative procedures. The speaker then cited a large number of cases in illustration of the theories he had advanced.

Dr. H. KOLLER, the discoverer of the anæsthetic properties of cocaine, who was present by invitation, was then asked if he would give the Section the benefit of any experience he might have had as to the possible dangers of the drug. He said that he had made it a rule never to give cocaine into the hands of patients, and indeed he never prescribed it, but always used it himself upon his patients. One did not, he said, give chloroform and ether to patients to be used by them indiscriminately, and why make cocaine an exception? Then, again, cocaine should, he thought, not be used in the nostrils in greater strength than a five-per-cent. solution. He knew he could produce with this just as useful effects as with a twenty-per-cent. solution—it was only a question of taking a little more time. The effect of the first application of a weak solution to the mucous membrane of the nose was a superficial anæsthesia, with contraction of the smaller blood-vessels. The circulation of the part became more or less limited and the blood was not carried away. By several subsequent applications of the same solution an effect was then produced exceeding that of a single applica-

tion of a twenty-per-cent. solution. He had found it advisable when making subcutaneous injections of the drug to discriminate between the strength of the solution used in the limbs and that employed upon other parts of the body, the latter calling for the weaker solution, for the avoidance of intoxicating effects. For making plastic or skin operations he never used a solution stronger than two per cent. As an instance of the deleterious effects of the persistent use of the drug he narrated the case of an eminent professional man in Vienna. This gentleman had become addicted to the use of morphine, and a friend of the speaker's had endeavored to break the habit by the administration of cocaine. One of the symptoms produced had been very marked. The patient had had the hallucination that all over his skin were pimples out of which little animals were creeping. This seemed the only mental disturbance produced, but no reasoning could shake the patient's conviction in this respect. In another case, treated heroically by the drug, the same symptom had been produced. The speaker contributed this experience, as he believed it might not be generally known.

Dr. M. J. ASCH said that his experience differed from that of Dr. Curtis. While using the drug freely in a large outdoor clinic and in private practice he had seen but very few cases in which any bad effects had resulted from local applications, and these had been cases of nervous, hysterical women. He was in the habit of using a ten-per-cent. solution in treating the larynx and in endolaryngeal operations, and had found it perfectly harmless.

The CHAIRMAN said that his experience would substantiate the conclusions of Dr. Asch rather than those of Dr. Curtis. He used cocaine in a solution of about ten per cent. for the nose, putting in two or three pledgets of cotton wet with the solution, and allowing them to remain in the nostrils for ten or fifteen minutes. While he had never given the matter very careful attention, and had never questioned patients as to sensations produced about the limbs, head, or body, he certainly had never heard them complain. He had, however, seen it produce irritability of the nostrils. It caused a sort of vaso-motor paralysis, and set up a condition very much resembling hay fever.

Dr. ROBINSON thought that there was no evidence to show that cocaine exercised anything like a toxic influence when it was used locally. There might be some slight exhilaration for a short time after the cocaine spray. When it was given internally, however—for instance, as a cardiac stimulant—decided and enduring effects were observable. The very weak solutions seemed in some instances to exercise a more poisonous effect than the strong ones.

After the question had elicited some general discussion, Dr. CURTIS remarked that he seemed to have been misunderstood by some of the speakers. He was an enthusiastic believer in the therapeutical properties of cocaine, and had a profound respect for its discoverer, to whom he felt in a manner personally indebted in that he had honored the meeting with his presence. All he wished to elucidate was that, indiscriminately used, the drug possessed properties which, if not fully recognized, might cause undesirable and deleterious results.

Lupus Erythematosus of the Face and Oral Cavity.—The history of a case was reported by Dr. GEORGE H. FOX, who said that it was one of considerable interest, and had been under observation for eighteen months. When the patient was first seen the condition was diagnosed as being eczematous in character, and was believed to be such for several months. But the surprising obstinacy of the eruption and the frequent occurrence of erysipelatous inflammation, with a dry, pitted appearance of the cheeks, had finally led to the conclusion that it was one of lupus erythematosus of the acute disseminate type. Upon sending recently for the patient, with a view to making a more

careful examination of the oral cavity, as the basis of a report upon the case, the speaker had learned from the family physician that she had suffered from acute pulmonary disease, which had in a few days proved fatal. It might be remarked that the relation of lupus erythematosus to lupus vulgaris had long been an unsettled question in dermatology. Although a certain kinship might exist between them, it was generally admitted that they were clinically distinct affections. The application of the term lupus to both was to be regretted, as it had led many into the erroneous belief that the two affections were simply varieties of one disease. Whereas lupus vulgaris—*i. e.*, the ordinary tubercular form of lupus—was not infrequently observed upon mucous surfaces, a case of lupus erythematosus of a mucous membrane had never been reported in this country to the speaker's knowledge. The cases reported by European observers were extremely few. Kaposi, in an excellent chapter on erythematous lupus, spoke of having seen three cases in which the eruption upon the face had been accompanied by an analogous condition of the oral cavity. The termination of these cases was not mentioned, but reference was made to eight cases of the disseminate form of the disease accompanied with erysipelatous inflammation, of which four of the patients had died of pneumonia.

Dr. SHERWELL then presented a girl aged fifteen who he said had first appeared at the clinic of the Eye and Ear Hospital, Brooklyn, in 1887, asking for relief from long-continued aphonia and some pain in her throat. On examination of the throat, the tonsils of both sides had been found to be tumefied and infiltrated; the same condition had existed in the pharynx, but more marked on the left side. Laryngoscopic examination had shown signs of irritative tumefaction and erosions of the larynx and epiglottis, this condition being more marked on the left side, with ulceration of the tip of the free border of the epiglottis. There had been paresis of the left vocal cord, the ventricular band on that side being swollen and infiltrated and presenting a worm-eaten looking erosion. The family history had been good. In spite of this, the patient had presented protean characteristics, which had inclined to the belief that the condition was due to latent specific disease. The patient had for a time been put upon tentative treatment, but with negative results. The disease had progressed slowly, without increasing in intensity, until the upper part of the pharynx and the palatine arch had become involved. The diagnosis of lupus of the milder type (lupus erythematosus) had been made, and afterward established. The patient had been kept under observation, and was doing well without treatment. The infiltration had now left the side of the larynx first attacked and had gone over to the right side, which now presented pretty much the same conditions as the left side had done four years ago. The slight and characteristic scarring left by the trouble could easily be seen over the whole extent of the pharynx and hard palate. The patient's general health was much better than when she had first presented herself. No treatment was being given.

A brief discussion on Dr. Fox's paper closed the proceedings.

NEW YORK ACADEMY OF MEDICINE.

SECTION IN OBSTETRICS AND GYNÆCOLOGY.

Meeting of November 27, 1889.

Dr. J. E. JANVRIEN in the Chair.

General Observations on the Use of Electricity in Gynæcology.—A paper with this title was read by Dr. A. D. ROCKWELL. He said that until a recent period the advances in the therapeutic uses of electricity had been more especially along

the line of those destructively nervous affections that were neither specific nor structural in their nature. Cases of the latter type had always yielded but meager results under electrical treatment, and the speaker did not know of any competent authority who seriously alleged for electricity, in most cases of structural diseases of the central or peripheral nervous system, more than temporary and palliative effect. The statement that as a therapeutic agent "the effects of electricity are limited" must indeed seem a rash observation to those who had had repeated evidence of the wide range of its influence in the relief of nervous symptoms, and especially to those who had witnessed the really remarkable relief so often afforded by intra-uterine applications of the galvanic current. The speaker did not propose so much to give the results of his own experience in gynæcological electro therapeutics as to allude to some points in the rationale of its effects. He called attention first to the faradaic current. Its effects were mainly mechanical, and according to the construction of the helix, the length and thickness of the wire, did we measure its action on the muscular tissues of the uterus. Applied directly to the uterus of an animal in physiological experiments, the organ visibly contracted, although not to such an extent as the intestines, which, on application of the electrodes, could be seen to gradually draw up, very much after the manner of a woman's work-bag. Its action on the smooth muscular fibers of the human uterus, when applied therapeutically, was analogous to that of ergot, although manifestly more prompt and energetic, especially under the influence of the positive pole, which possessed a far greater power over the involuntary muscles than the negative. By this action a veritable interstitial massage was obtained. It was potent in overcoming the primary inertia of the uterus and in preventing an arrest of retrograde metamorphosis, through which came subinvolution and its inevitable and persistent sequelæ. When the processes that went to make up the graver and more chronic diseases of the uterine parenchyma and its lining membrane had continued a long time, as was usually the case when medical interference was sought, the simple mechanical effects of the faradaic current would be altogether misdirected. Here we resorted to the electrolytic influence of the galvanic current, or rather to what might be more fitly termed its galvano-chemical cauterizing effects, through which were destroyed the granulations and fungoid growths of the diseased mucous membrane. By the interpolary influence of the current we corrected a languid nutrition and hastened the absorption of exudation. Just as the positive pole of the faradaic current had an action of its own superior in effect to the negative in causing uterine contractions, so the positive pole of the galvanic current had an action peculiar to itself. Here oxygen was generated and acids accumulated which rendered this pole directly hæmostatic. It was therefore indicated in all hæmorrhagic conditions as well as where there existed an excess of the natural secretions. At the negative pole the alkalies were precipitated, imparting caustic properties and causing effects fluidifying rather than hæmostatic. The absorptive process was undoubtedly more active under this pole than under the positive, and was especially indicated in indurated chronic metritis and for the resolution of fibroids. That the galvanic current often completely dissipated fibroid tumors of the uterus few would, the speaker believed, affirm. The symptoms could be relieved to a greater or less extent by electrolysis, and sometimes so completely relieved as to lead to the belief, so far as the patient was concerned, that the tumor had entirely disappeared. He was a firm believer in the great utility of the galvanic current in the absorption of the thickenings and infiltrations resulting from inflammation of the pelvic cellular tissue. He had seen the treatment, persistently carried out, result not only in the absorption of large pelvic

deposits, but in the cure of the most obstinate and severe sciatica, and in the restoration of power to partially paralyzed limbs. There were two methods of action through which we obtained results from electrolysis. The first and most apparent was the absolute destruction of tissue which took place at the time of treatment. Some suppuration might follow, and thus, by an actual loss of substance apparent to the sight, the tumor decreased in size. The electrolysis of organic substances started a process that continued long after the current had ceased to flow, and induced various important changes beyond and beneath the eschar. These combined agencies did far more in many cases to diminish the size of morbid growths and prevent further development than an actual destruction of a limited area. The effect of either current in dissipating the uterine and ovarian pains was sometimes remarkable. The speaker related a case in which the patient had suffered intensely from dysmenorrhœa for six or seven years, and had finally resorted to extirpation of the ovaries for the relief of it. The flow had gradually diminished, but the pains had increased in severity. Under the internal applications of the galvanic current, ranging from 25 to 50 milliamperes in strength, the paroxysms had yielded rapidly and in a few months recovery was complete. If an agent like the galvanic current possessed such marked influence over so many forms of pain of obscure origin, why should not this treatment precede rather than follow severe operative procedures for their relief?

The Treatment of Certain Pelvic Tumors by Galvano-puncture and Drainage by the Vagina, and Intra-uterine Galvanization.—A paper on this subject was read by Dr. AUGUSTIN H. GOELET. The speaker desired to be understood as referring only to such tumors as were easily accessible by the vagina for galvano-puncture, and those which were so intimately associated or connected with the uterus as to be influenced by the chemical galvano-caustic application to the endometrium. He also included under this caption pyosalpinx and hydrosalpinx. The speaker then exhibited the instruments that he used in these operations, and briefly described the methods of their application. For the galvano-puncture, a fine silver cannula, size No. 4 of the French scale, with a steel trocar, was used. The trocar was covered with a slide of insulating material which could be fixed by a screw to the shaft of the cannula, so as to limit the degree of penetration. It was also arranged for connection with the battery. The cannula was so made that it could easily be attached to an aspirator. The method of application was simple; after deciding upon the degree of penetration necessary, the slide was fixed, and the trocar point drawn within the cannula. The vagina and the vulva being douched thoroughly with a solution of bichloride, the index finger was introduced, and, taking care to avoid any pulsating vessel, the most dependent point was selected. Then the cannula, with the point of the trocar concealed, was passed along the finger until it impinged against the spot selected. The trocar was pushed down into place, and the cannula was made to penetrate to the limit fixed by the slide. The trocar being withdrawn, if no fluid escaped, the slide was readjusted lower down and the cannula, without the trocar, was introduced a little farther. When the fluid was evacuated the trocar was partially reintroduced and connected with the battery, the circuit being completed by a large clay electrode on the abdomen or back. In hydrosalpinx the negative pole was used through the cannula, with not more than fifty milliamperes for five minutes. In pyosalpinx the cavity must be washed out with an antiseptic solution, as an extra precaution. The positive pole was to be preferred because it was less irritating, and was believed to be more antiseptic. When applied, a cannula made of platinum should be used, as the silver would be acted upon and unnecessary irrita-

tion provoked. The cauterization of the track of the puncture by the current shut it off from the surrounding tissues and rendered the absorption of septic material through that channel impossible. If a dressing of iodoform gauze was kept constantly renewed in the vagina there was nothing to be apprehended from that source. Resolution in the diseased tube was promoted by the influence of the current and was still further favored subsequently by mild positive galvanism of the endometrium. The speaker limited this treatment by aspiration to such tubes as were close to the vaginal wall, and where fluctuation might be distinctly felt. These tubes were usually fixed by a mass of exudation. This treatment of hydrosalpinx was suggested to the speaker by observations of three cases of radical cure of hydrocele, which had been accomplished by this method. The hydrocele had repeatedly refilled after ordinary tapping, but had never refilled after using negative galvanism through the cannula. Small cysts close to the vaginal wall were also successfully treated in this way. The fibro-cyst was sometimes more obstinate in yielding to this treatment, especially those lined with a secreting membrane. Some cases yielded to one tapping, and negative galvano-caustic application of one hundred milliamperes through the cannula, but in other cases it had been necessary to make the application directly to the cavity. This was done by enlarging the opening with gradually increasing sizes of conical electrodes connected with the negative pole until it would admit a bulb electrode into the cavity. This bulb was fixed upon a small insulated shaft which was flexible, and through it a current of one hundred and fifty to two hundred milliamperes was concentrated within the sac. If drainage was not perfect through the opening, a rubber drainage tube was inserted and fastened in position. A dressing of iodoform gauze was kept constantly renewed in the vagina. The speaker related the history of a case of fibroid tumor that had been successfully treated by galvano-puncture. The patient had suffered with very severe periodical pains, which had compelled her to keep her bed for ten days or two weeks out of every month for about eight years. The tumor as found by the speaker was situated to the left of the uterus, to which it was attached near the cervico-vaginal junction and close to the vaginal wall, and was of about the size of a quart bowl. The treatment was commenced with galvanism, but this was not well borne. At the first galvano-puncture through the vagina, the negative pole, with two hundred and fifty milliamperes for five minutes, was used. This puncture was followed immediately by a discharge of an ounce and a half of yellow fluid. As this did not continue, it was concluded that a small cyst had existed on the surface of the tumor which had been emptied. Eight days afterward the second negative galvano-puncture was made with two hundred milliamperes of five minutes' duration, and no discharge followed. Menstruation appeared two days later with much less pain than before. At the third treatment, the positive pole was used with three hundred milliamperes for five minutes. A week after the sixth puncture a copious watery discharge came suddenly from the vagina, and continued to flow away in gushes. Investigation showed that it came from the last puncture tract. The opening was enlarged and the sound passed up four inches into a cavity. All of the fluid was drawn off, but the discharge continued for two weeks as much as a pint a day. A bulb electrode was introduced and one hundred and fifty milliamperes of negative galvanism applied to the cavity for eight minutes. Three days later all discharge had ceased. At present, six months since the last application, the patient presented every evidence of perfect health. She had no pain, and menstruation was normal. What remained of the tumor was of about

the size of a hen's egg. It gave her no inconvenience whatever. Dermoid cysts might be treated in the same way, when they contained only sebaceous matter. The condition known as chronic pelvic cellulitis, which was usually manifested by a mass of exudation in one or both broad ligaments, including the tube and ovary, and associated with salpingitis and endometritis, yielded very satisfactorily to galvanization of the endometrium. It was important to begin the treatment always with a small dose, from twenty to thirty milliamperes for three to five minutes every second or third day, using the positive pole. It was sometimes even better to begin with vaginal applications. The dose might be increased to fifty milliamperes as tolerance was established. Later in the course it might become necessary to substitute the negative pole or vaginal puncture to hasten absorption. This condition doomed the patient to a life of misery, and she was constantly threatened with peritonitis. Laparotomy did not cure; it mutilated. By galvanism she could be promptly relieved of pain, the deposits were softened and absorbed, the inflammatory complications were removed, and she was eventually restored to health with her ovaries and tubes intact, and with a chance of conception. Thomas Keith had truly said: "Apostoli's method, though slow, requiring much patience, tenderness of manipulation, and thought, is still sure in its results." This same writer had added also of electricity: "My confidence in its power to relieve disturbing symptoms of uterine fibroids, and to cure many chronic inflammatory conditions in the pelvis, continues to increase, and I have no fears for the future of electricity." He had said also: "Hysterectomy, remember, which is performed every day for a complaint that rarely of itself shortens life, kills every fourth or fifth woman that is subjected to it. This mortality must cease; it is not a question of surgery; it is a question of humanity. Every time that any disease can be cured without resorting to a bloody and dangerous operation, such as hysterectomy, progress is made in our art, and there is gain to humanity, while surgery is the better for being purged of a deadly operation. Even the fact that in my cases of hysterectomy the removal of the uterus and ovaries was sooner or later followed by insanity in ten per cent. of the whole number, is enough for me to condemn any operation that removes these organs." This was the mature opinion of a most successful surgeon—one who had been the first to lower the mortality of abdominal surgery. The speaker closed his remarks by paying a high tribute to Apostoli, and said that he did not think any one should attempt to pass judgment, in condemnation, on that gentleman's work until he had visited his clinic and witnessed it and its results.

The Galvanic Treatment of Uterine Fibromata.—A paper with this title was read by Dr. E. L. H. MCGINNIS. The speaker described Apostoli's methods in detail, and also fully described galvano-puncture as practiced by himself at the Woman's Hospital. The speaker's methods did differ materially from those of Dr. Goelet. The negative pole was used in non-bleeding fibroids, the positive as a hæmostatic. The speaker had had the satisfaction of stopping hæmorrhage in several patients that had come to the hospital nearly exsanguinated. He not only had stopped the dangerous bleeding, but had prevented a return of it. He believed that the most obstinate hæmorrhage could be controlled, provided a sufficiently strong current was used and every part of the endometrium brought in contact with the electrode. This was sometimes very difficult, as the canal might be tortuous, and the stiff electrode then failed to touch some spot where there was bleeding. This might be provided for by using a flexible electrode which was insulated to its platinum tip. Should there be fungosities present they would be destroyed at the same time, thus answering the purpose of curetting without leaving a fresh bleeding surface within

the uterus. The speaker gave the history of a case at present under his care. He had first seen the patient last February. Her history revealed the fact that she had first noticed the enlargement in her abdomen four years before; she had had all the usual symptoms, including several severe hæmorrhages, which had left her nearly bloodless. She was emaciated to an alarming extent, her pulse was weak, and she felt perfectly certain that her next hæmorrhage would be her last, and that she could not recover from the effects of a hysterectomy. The tumor was situated in the fundus, and extended to the ensiform cartilage. Her waist measured forty-four inches in circumference. The depth of the uterus was five inches and a half. Fortunately, the canal was straight, and there was little trouble in introducing the electrode and thoroughly cauterizing the endometrium. This treatment was continued at intervals of two weeks. The patient was obliged to leave town, and the speaker lost sight of her for some months. She reported in October that she had had no return of the hæmorrhage. The tumor was now down to the umbilicus, was not tender, and gave her no pain. The canal was three inches and a quarter long, and the patient could walk to the speaker's office, which was nine blocks from her home, three times weekly for her treatments. The experience of the speaker with Dr. Apostoli's methods had been more than satisfactory. In conclusion, he urged that the method be given a proper and thorough trial before taking patients to the operating-room, there to undergo the dangers of the knife.

Notes regarding the Treatment of Fibromata by Electricity.—Dr. A. H. BUCKMASTER, of Brooklyn, in a paper on this subject gave the results of some practical experiments for testing the direct effect of electricity on various tissues. He said that it was desirable to know how these growths were affected by the current. As fibro-myomata were made up for the most part of non-striated muscular fiber, and as it was difficult to obtain an animal with this exact pathological condition, he had selected the heart of the dog as the nearest approach to the tissue required. While the dog was living the heart was exposed, and a current passed through it. Then the portion in the direct line of the current was excised and carefully examined microscopically. At the same time portions a little distance from the track of the current were also removed. In those portions exposed to the full extent of the current the striæ had become markedly granular. Outside this line but little effect was noticed. In the non-striated muscular tissue a marked inter-polar change could be demonstrated, consisting in the destruction of the cell elements, a sort of retrograde metamorphosis of a degenerative character. A high current would develop changes in tissue, though its efficacy in this respect was still denied by some observers.

The Value of Bipolar Faradization in Gynæcology.—By Dr. A. LAPTIIORN SMITH, of Montreal. This paper, in the absence of Dr. Smith, was read by Dr. J. R. Goffe. The author said that as they were aware it was Faraday who discovered that an induced current of electricity was set up in a conducting wire which was placed near to but did not touch another wire through which a current was passing, they were also aware that the appreciable effects of the passage of a current of electricity, either direct or indirect, were greatly increased by the interruption of the current. Thus, a continuous current of one hundred milliamperes could be easily borne, while if the same current were interrupted it would promptly knock one down. They were also aware that by making the primary wire into the form of a coil and placing a piece of soft iron in it as a core, the iron became magnetic whenever the current passed, and this body of magnetized metal in turn intensified the current in the primary coil. The latter should be made of medium

coarse wire, so as not to offer too great a resistance for the battery to overcome. The battery, which might best consist of two closed cells in a separate portable case, must have sufficient electro-motive force to push through the coil. The secondary or induced coil deserved special attention, because it would depend entirely upon the shortness and coarseness, or the length and fineness, of the wire, whether they would obtain those almost magical effects which were alleged for it. There were many who could not believe that these differences were of any real consequence, and yet there was no fact in medicine of which Dr. Smith was more certain than that the results of these two wires were totally different. The coils used by the writer were wound as follows: The short wire coil, which was about twenty-five yards long, No. 14 or 16 in diameter, was insulated with silk, and varnished between the layers. The fine wire was No. 40, and about a mile long. The short, thick wire gave out nearly the whole quantity of current which was induced in it, and was therefore called the current of quantity. The long, fine wire offered a tremendous friction or resistance to the passage of the current, and was therefore called the current of tension. The current of quantity from the coarse wire coil had long been known to be an excellent tonic to muscular fiber. While it should be placed very high up on the list of tonics, the writer did not think that it possessed any miraculous virtues which were not to be found, to a greater or less extent, in gymnastics, regular exercise, strychnine, quinine, ergot, hydrastin, and cold and hot water. This much could be said for it, however, that in relaxation of muscles the tonic effect could be applied directly to the muscles or group of muscles which were mostly at fault. By means of Apostoli's bipolar electrode it was especially adaptable to the muscular organs in the pelvis. In post-partum hæmorrhage prompt and permanent contraction of the uterus could be brought about by introducing the bipolar electrode and turning on the coarse wire current. Subinvolution, due to defective contraction of the uterus, yielded readily to the bipolar method. The advantages of this were: 1. It was less painful than the old method, because it did not require the current to pass through the skin, which was much more sensitive than the vagina. 2. It was easier to apply and precluded the need of an assistant. 3. It allowed a much stronger current to be tolerated. 4. It was consequently more effective, because the higher the intensity of the dose the more marked the effects. Bipolar electrodes were made with one pole at the extremity and the other separated from it by an interval of an inch or so of insulated material, so that the current had to go through the tissues to get from one pole to the other. In doing so it seemed to set up circles of induction in the neighboring structures, as proved by the following observation: When the current was started with a moderate strength from the fine wire coil, the patient, if asked what she felt, would say that there was a numbness of an area of about the size of a walnut. As the secondary wire was passed over the primary one more and more she would say that the area had increased to the size of an orange, and, finally, when the whole strength was on, the numbness would have invaded the whole pelvis, including the area of pain. The element of pain played an important part in the diseases of women, and very often existed where no organic lesion could be found. More especially was this the case with ovarian pain, a great many cases of which had been completely cured with fewer than a dozen applications of the fine-wire faradism. There were three kinds of cases in which the fine-wire bipolar faradization produced remarkable results: 1. In ovarian pain, where no organic disease could be found. The writer did not pretend for a moment that it would be of any use in even small ovarian cysts; the sooner they were removed by operation the better, and when he saw these presented at society meetings he felt no

regret that they had been removed. But when some of our surgeons took two or three pairs of healthy ovaries from their vest-pockets which had been removed on account of pain, he felt sorry that they were not aware how easily that pain could have been relieved by fine-wire faradism. 2. In cases of abdominal pain due to hysteria it acted very promptly, not only in rendering the abdomen insensible to pressure, but also in calming the general nervous crisis within a few minutes. 3. There were many women about the age of thirty who, though fleshy and apparently well supplied with blood, did not menstruate at all or only very slightly. These women felt very uncomfortable; their *embonpoint* made them weak, and they had many nervous symptoms, which placed them in the category of hypochondriacs. Anything that would bring on a full return of the menstrual flow gave them relief. This object would be accomplished by using the current of tension three times a week to the inside of the uterus. 4. In vaginismus it was remarkably effective. The worst case of vaginismus the writer had ever treated was cured in three applications, and the woman became pregnant at the next ovulation. There were some troublesome conditions of the bladder in which the bipolar faradization could be used with advantage. In conclusion, the writer disclaimed any intention of considering bipolar faradism as the only remedy in gynecology. While we were calming a woman's pain with electricity, we should at the same time be removing the unhealthy conditions of the body generally, on which most often the local disorder depended. All that he wished to say for it was that it was a valuable addition to our therapeutic resources, especially in those diseases of women in which all other methods of treatment often failed.

Dr. P. F. MURDÉ said that he had been for a number of years much interested in this subject of electrical treatment, and believed he had had ample opportunity to become acquainted with its practical working. He could speak most decidedly in favor of electricity as a therapeutical agent in gynecology, and had published his convictions on this subject some few years ago. He had seen more benefit derived from galvanism than from faradism in gynecological practice. He had also found that mild currents used for a long time were more efficacious than strong currents employed for a short time. He used a Leclanché battery of forty cells. For ordinary purposes he used a small meter registering only twenty milliamperes. He had another which registered five hundred milliamperes. This he had tried only a few days ago in treating a fibroid and had found it faulty. Using galvanism and placing the positive electrode next the sensitive spot in the pelvis, or on the abdominal wall, he had been able to obtain very efficacious results in relieving the pain incident to chronic pelvic peritonitis. In old cases of inflammation with adhesions, with more or less pain in the ovaries and tubes, he had found that the tri-weekly administration of electricity, with the positive current internally, was of decided benefit after some few months of treatment. On the other hand, quite a number of patients, after several months of such treatment, had complained of receiving no benefit whatever, and laparotomy had had to be resorted to. This proved that electrical treatment was not suited to these particular cases. Still he deemed it proper in all circumstances to give the patients every opportunity for possible benefit from electricity before submitting them to a radical operation, which, let it be done by whom it might, could never be without an element of danger. In obscure pelvic pain, due to some inflammatory deposit unrecognizable by digital examination, extending down the sciatic or crural nerves, he had seen instant relief follow the use of electricity when other treatment had failed. While he relied on this treatment, and had found it of great benefit, especially in relieving pain, he thought one might go too far. Very

often the radical operation was the only thing to do. He considered the length of time necessary to achieve palpable results a great drawback to the use of electricity. If it was clear that some good was being done, the time was, of course, not lost. He had been pretty severely criticised some four years ago about the milliamperemeter. At that time this instrument was not used to any great extent—at any rate, he had not been able then to obtain a good one in New York. Even now, though he had two, he was by no means satisfied that it was at all necessary, and was inclined to look upon it as a sort of plaything. When using galvanism for the removal of pain the sensations of the patients would be sufficient guide as to the strength employed. When it came to using the galvanic current on patients under an anæsthetic or for the employment of the galvano-puncture, of course it was necessary to know what the battery was doing. The faradaic current he had found do a great deal of good in curing amenorrhœa by intra-uterine faradization three times a week. He had used electricity only once in extra-uterine pregnancy, in which he had employed the interrupted galvanic current. He had cured his patient after nearly killing her by the shock. In pyosalpinx and pelvic abscesses laparotomy and drainage were to be preferred to galvano-puncture. As to fibroids, he had very decided views. He considered that operative treatment of fibroids of the uterus and ovaries was overestimated. Out of one hundred and twenty-three cases under his observation, about fifty per cent. had required no treatment whatever, sixty-two had required treatment, but only eight of this number, in his opinion, had required Apostoli's method, and four others had called for galvano-puncture. Apostoli's method of treatment covered only the intra-uterine use of galvanism with the clay electrode on the abdomen, the galvano-puncture not being strictly his method. He had employed Apostoli's plan eight times in three years, and had also written about it. He could honestly say that, while he believed in it for the removal of pain and in hæmorrhage, and admitted that the patients felt better for its use, not a single tumor had come under his notice that had been much reduced in size.

A Portable Galvanic Battery.—Dr. FRANKLIN H. MARTIN, of Chicago, exhibited a portable galvanic battery, upon the reliability and effectiveness of which he spoke at some length. He also went into the question of the treatment of inflammatory exudates in the female pelvis by galvanism, giving some of the results of his own cases and his methods of carefully noting the subsidence of these formations by measurement while under treatment.

Dr. G. BETTON MASSEY, of Philadelphia, said that, in regard to this new electrical treatment of the diseases of women, he was of the opinion that a forward movement of great importance had been initiated. So positive and striking was this progress that its degeneration into a fad was to be feared. But the fear of this should not blind us to important facts. During the last few years electricity had itself been revolutionized, and it would be strange indeed if our better knowledge of it did not lead to the better application of this force to the medical arts. There was one class of conditions in which the galvanic current possessed a value unique; that was chronic inflammation of the uterus or of the endometrium. This agent would act as an alterative to the diseased membrane, and at the same time reduce interstitial hypertrophy by promoting both absorption and contraction. In simple endometritis or uterine catarrh the galvanic current locally applied was practically infallible. The current need not exceed ten to thirty-five milliamperes, using the bare intra-uterine electrode and an external indifferent pole of proper size. The choice of currents was governed by the presence or absence of menorrhagia, the positive being

always used with this complication. When the endometritis was associated with slight cervical lacerations it would usually be found unnecessary to operate for repair, as all symptoms disappeared under this treatment. The speaker reported the result of treatment in twenty-six cases of fibroid tumors. Two had been cured anatomically and symptomatically, seven had been cured symptomatically and anatomically reduced, eleven had been greatly improved, four slightly improved, one unchanged, and in one death had occurred.

Some Remarks on the Value of Electricity in the Treatment of Fibromata. By Dr. ALEXANDER J. C. SKENE. As this gentleman was prevented from being present, his notes were read by Dr. Buckmaster. In estimating the value of electricity in the treatment of fibromata, Dr. Skene said that he had of necessity been guided by the opinions of others more than by his own observations. Owing to the extremely conflicting testimony of those who had expressed themselves, it had been very difficult to get anything definite. One class of men had condemned the treatment without mercy. Another class had obtained the most perfect results. There was another class who had had an intermediate experience. They had been able to relieve their patients of most or all of their symptoms, and had diminished the size of the tumors or retarded their growth. The writer had accepted the testimony of this latter class, because it appeared to have more truth in it and because it agreed with the results of his own practice. Perhaps the most important question in the whole discussion was as to the relative merits of this and other methods of treatment. The writer had hoped to get records to show that more patients had died from removal of the uterus and ovaries for the cure of fibromata than had died from fibromata without treatment of any kind. Up to the present time electro-therapeutics in its immature state had been competing with surgery, that had the advantage of being perfected by long experience. Great progress had been made in a short time. In a recent discussion in the Academy of Medicine of Paris, it had been shown that strong currents were not called for, and that it was necessary to puncture the tumor to get good results.

Dr. H. J. BOLDT, after going into the theory of the bipolar action of the current in the tissues, went on to say that those gentlemen who in no wise accepted electricity as efficacious were those who had never given it an honest trial. They had no right to operate on any patient until electricity had been given a thorough test. That it would not in every instance even alleviate the symptoms he thought he could vouch. As to pyosalpinx, he thought these cases were cured when the tubes were cut out. When the tubes were distended and the uterine extremities were closed, or where the tubes were agglutinated, what could be expected from electricity? All that could be done was to remove the tubes. But as long as the caliber of the tubes remained patent it was well to try everything, and a great many of the patients got well. Many mistakes in diagnosis were made, and it was not advisable to be too enthusiastic.

Dr. GOELER said that he had cured at least thirteen patients by galvano-puncture who could not have been relieved otherwise, except by laparotomy. That was to say, the patients would otherwise have been mutilated. He thought it only right to try to cure these patients before mutilating them. By emptying the tubes and the use of the current subsequently the tubes might be rendered patent. He thought that the pus could be first emptied and then the removal of the cause of the accumulation of that pus effected. The resolution of the proximal end of the tube could be produced by galvanism of the endometrium. He did not think we ought to say that the removal of the tubes was a cure of pyosalpinx. In many instances, indeed, the patient's condition was more harassing after the op-

eration than before. He thought that Dr. Mundé's failures with electricity, when they occurred, were to be laid to the fact of his having used his currents too weak. Then, again, he thought the doctor had made a mistake in ignoring the milliamperemeter as a plaything. Many women would bear intense pain and say nothing about it, and electricity might be thus administered in dangerous doses. It was impossible to estimate the particular resistance of the tissues in every case, and for these reasons the meter was always an important auxiliary.

The CHAIRMAN asked whether Dr. Goelet's experience of intra-uterine galvanism had demonstrated to him that an occluded tube had become patulous again and was performing its function like the other one which was assumed to be healthy. Of course the fact of fecundation occurring did not imply that both tubes were functionally competent.

Dr. GOELET replied that he could only assume that complete recovery had ensued from the fact that all symptoms had been completely removed, that menstruation had become normal, and that there had been no reaccumulation in the affected tube.

Book Notices.

Ophthalmology and Ophthalmoscopy for Practitioners and Students of Medicine. By Dr. HERMANN SCHMIDT-RIMPLER, Professor of Ophthalmology and Director of the Ophthalmological Clinic in Marburg. Translated from the Third German Revised Edition. Edited by D. B. ST. JOHN ROOSA, M. D., LL. D., Professor of Diseases of the Eye and Ear in the New York Post-graduate Medical School, etc. One Hundred and Eighty-three Woodcuts and Three Colored Plates. New York: William Wood & Company, 1889. Pp. xv-3 to 571.

ONE of the most popular of German text-books on ophthalmology is here presented for the first time in an English dress in a handsomely printed volume. It is divided into four parts and twenty chapters. The first part treats of the general examination of the eye, of errors of refraction and accommodation, and of amblyopia and amaurosis. We think it unfortunate that the author has retained the terms amblyopia and amaurosis as descriptive of diseases, since they are merely symptoms and at the best but ill-defined. The second part treats of ophthalmoscopy and diseases of the optic nerve, the retina, the choroid, and the vitreous humor. The third part considers the subjects of glaucoma and diseases of the lens, conjunctiva, cornea, sclera, iris, and ciliary body, including ophthalmomalacia and sympathetic ophthalmia. The fourth part treats of diseases of the ocular muscles, the orbit, the eyelids, and the lacrymal apparatus.

The illustrations are all good and sufficient for the purpose for which the book is intended. There is a very good index, and the book is a very favorable specimen of the printer's art. The translator, whose name is not mentioned, has done his work well, and the editor has made numerous additions throughout the entire volume, which enhance the value of the work.

A System of Obstetrics. By American Authors. Volume I. Edited by BARTON COOKE HIRST, M. D., Assistant Professor of Obstetrics in the University of Pennsylvania. Illustrated. Philadelphia: Lea Brothers & Co.

THE contributors to this volume are Dr. Samuel C. Busey, Dr. George J. Engelmann, Dr. Barton Cooke Hirst, Dr. William

Wright Jaggard, Dr. H. Newell Martin, Dr. Theophilus Parvin, Dr. R. A. F. Penrose, and Dr. J. C. Reeve. It is safe to affirm that this contribution to obstetric literature contains the last word of science upon the subject of which it treats. Each division is complete in itself, interesting as historical reading, admirable as instruction, and valuable in point of clearness and for direct conclusions that are easy to find when in hurried search of enlightenment and advice. The special divisions of the subject, in their regular order, contained in the present volume are the history of obstetrics; the physiology and histology of ovulation, menstruation, and fertilization; the development of the embryo; the fœtus: development, anomalies, etc.; pregnancy: its physiology, pathology, differential diagnosis, and premature expulsion; the conduct of labor and management of the puerperal state; the mechanism of labor and the treatment of labor based on the mechanism; the use of anæsthetics in labor; and the anomalies of the forces in labor. There are three hundred and nine wood engravings and one colored plate—the areola in pregnancy (after Spiegelberg)—that add greatly to the attraction and usefulness of the book. The work gives promise of being a reference library in itself that every physician can secure without too great outlay of money, and with great satisfaction to himself.

Lehrbuch der allgemeinen und speciellen pathologischen Anatomie für Aerzte und Studierende. Von Dr. ERNST ZIEGLER, Professor der pathologischen Anatomie und der allgemeinen Pathologie an der Universität Freiburg in Baden. Zwei Bände. Sechste verbesserte und theilweise neu bearbeitete Auflage. Erster Band. Allgemeine pathologische Anatomie und Pathogenese. Mit 343 theils schwarzen, theils farbigen Abbildungen und einer Tafel in Chromolithographie. Jena: Gustav Fischer, 1889. Pp. xiv-567.

AN English edition of this excellent work was noticed by us a few years ago and approved of unqualifiedly. What the popularity of the work must be in Germany, where similar works of the highest merit abound, may be judged from the fact that it has so quickly reached a sixth edition. There is no science in which new facts accumulate with such rapidity as in pathological anatomy, and, we may add, this accumulation is nowhere greater than in Germany. The present edition has rigorously followed the development of the science. The pictures of the stained microscope preparations and bacterial cultures are especially beautiful and throw a light upon the subjects treated of which is afforded by no similar work with which we are acquainted. It is to be hoped that we may have an English reproduction of this edition.

The Cerebral Palsies of Children. A Clinical Study from the Infirmary for Nervous Diseases, Philadelphia. By WILLIAM OSLER, M. D., Fellow of the Royal College of Physicians, London; Professor of Clinical Medicine in the University of Pennsylvania, etc. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. 103. [Price, \$2.]

THIS book is based upon the records of 151 cases of cerebral palsy. Of these, 120 were those of children with hemiplegia, 20 with bilateral hemiplegia, and 11 with paraplegia. From a study of these and a careful digest of the best work upon the same subject in English, French, and German literature, the author deduces some valuable conclusions. He finds hæmorrhage to be the most frequent cause of all congenital forms, whether diplegia or hemiplegia; and he discusses judiciously the conflicting theories as to the origin of the more common variety of cerebral palsy—viz., the hemiplegias occurring during the first few years of life. The paralysis disappeared under

treatment in only two of the 120 cases of hemiplegia. Massage with sweet oil and faradism he regards as of great value to prevent atrophy and improve the nutrition of the paralyzed parts. Dr. Osler's brochure is without doubt the most complete summary of existing knowledge upon this as yet not entirely understood subject.

BOOKS AND PAMPHLETS RECEIVED.

A Hand-book of Pathological Anatomy and Histology. With an Introductory Section on Post-mortem Examinations and the Methods of preserving and examining Diseased Tissues. By Frances Delafield, M. D., Professor of Pathology and Practical Medicine, College of Physicians and Surgeons, New York, and T. Mitchell Prudden, M. D., Director of the Laboratory of the Alumni Association of the College of Physicians and Surgeons, New York. Third Edition. Illustrated by Two Hundred and Twenty-four Wood Engravings printed in Black and Colors. New York: William Wood & Company, 1889. Pp. xv-609.

A Treatise on Materia Medica, Pharmacology, and Therapeutics. By John V. Shoemaker, A. M., M. D., Professor of Materia Medica, Pharmacology, and Therapeutics in the Medico-chirurgical College of Philadelphia, and John Aulde, M. D., Demonstrator of Clinical Medicine and of Physical Diagnosis in the Medico-chirurgical College of Philadelphia. In Two Volumes. Vol. I. Devoted to Pharmacy, General Pharmacology, and Therapeutics, and Remedial Agents not properly classed as Drugs. Philadelphia: F. A. Davis, 1889. Pp. xii-5 to 353. [Price, \$2.50.]

Contributions to the Surgical Treatment of Tumors of the Abdomen. Part II. Electricity in the Treatment of Uterine Tumors. By Thomas Keith, M. D., LL. D. Edin., and Skene Keith, F. R. C. S. Edin., Edinburgh: Oliver & Boyd, 1889. Pp. viii-255. [Price, six shillings and sixpence.]

Transactions of the American Otological Society, Twenty-second Annual Meeting, Pequot House, New London, Conn., July 16, 1889. Vol. iv, Part III.

A Hand-book of Diseases of Women. Including Diseases of the Bladder and Urethra. By F. Winkel, Professor of Gynecology, and Director of the Royal University Clinic for Women, in Munich. Authorized Translation. Edited by Theophilus Parvin, M. D., Professor of Obstetrics and Diseases of Women and Children in Jefferson Medical College, Philadelphia. Second edition, revised and enlarged, with One Hundred and Fifty Illustrations. Philadelphia: P. Blakiston, Son, & Co., 1889. Pp. xxiii-17 to 766.

Hand-book of Obstetrical Nursing, for Nurses, Students, and Mothers. Comprising the Course of Instruction in Obstetrical Nursing given to the Pupils of the Training School connected with the Woman's Hospital of Philadelphia. By Anna M. Fullerton, M. D., etc. Philadelphia: P. Blakiston, Son, & Co., 1890. Pp. viii-16 to 214. [Price, \$1.25.]

Outlines of the History of Medicine and the Medical Profession. By Joh. Hermann Baas, M. D. Translated, and in conjunction with the author revised and enlarged, by H. E. Handerson, M. A., M. D. New York: J. H. Vail & Co., 1889. Pp. 10-13 to 1172.

Concealed Pregnancy: its Relations to Abdominal Surgery. By Albert Vander Veer, M. D., Albany. [Reprinted from the "American Journal of Obstetrics and Diseases of Women and Children."]

The Treatment of Internal Derangements of the Knee Joint by Operation. By Herbert Wm. Allingham, F. R. C. S., Surgeon to the Great Northern Central Hospital, etc. London: J. & A. Churchill, 1889. Pp. viii-165.

Massage. Kort Framställning af Douglas Graham, Medicin Doktor, ledamot af Massachusetts Medicinska Sällskap. Bemyndigad öfversättning af Nils Posse, Sjukgymnast Föreståndare för Gymnastikskolan i Boston, Nord-Amerika. Lund: C. W. K. Gleerups.

Severe Continuous Cephalalgia as an Early Secondary in Syphilis. By William Browning, M. D. [Reprinted from the "Brooklyn Medical Journal."]

Case of Tuberculosis Papillomatosa Cutis, with Remarks on the Relation of Papilloma to Syphilis, Lupus, etc. Illustrated with Chromo-

lithographic Plate. By Prince A. Morrow, A. M., M. D. [Reprinted from the "Journal of Cutaneous and Genito-urinary Diseases."]

New York Society for the Relief of Widows and Orphans of Medical Men. Incorporated 1843. Constitution and By-laws, to which is annexed a Brief History of the Society, and a Complete List of the Officers, Members, and Benefactors.

Introductory Address delivered at the Opening of the Fifty-seventh Session of the Medical Faculty of McGill University, October 1, 1889. By R. L. MacDonnell, B. A., M. D. [Reprinted from the "Montreal Medical Journal."]

Sixty-sixth Annual Report of the Managers of the New York Asylum for Lying-in Women. Presented April 18, 1889.

Prospectus of the Brooklyn Dispensary for the Treatment of the Nose, Throat, and Lungs.

First Annual Report of the New Amsterdam Eye and Ear Hospital. For the Year ending May 14, 1889.

First Annual Report of the Health Department of the City of Mansfield, Ohio. For the Year commencing March 1, 1888, and ending February 28, 1889. By R. Harvey Reed, M. D., Health Officer.

Third Annual Report of the Training School for Nurses connected with the Post-graduate Medical School and Hospital. May 31, 1889.

The Therapeutic Value of Motion. By G. H. Patchen, M. D., of New York. [Reprinted from the "Medical Advance."]

New Inventions, etc.

A SINUS CURETTE.

BY H. BEECKMAN DELATOUR,

BROOKLYN.

A NUMBER of cases in which I desired to curette have come under my care, but none of the curettes at command were small enough. Cases in which a small curette is of use are a whitlow, for instance, in which after incision considerable broken-down tissue is found. The old way of applying a poultice after incision required weeks to obtain a cure, while now, after incision and curetting away the necrotic tissue and applying a wet dressing, the parts will promptly heal in less than a week. A sinus may remain open for some time after a drainage-tube has been removed, as the granulations which line it are slow to close in. In such a case as this, if the granulations are removed and external pressure is applied along the line of the sinus, immediate union of its walls will take place. There are also cases of necrosis of small areas having narrow sinuses leading to the surface. These sinuses are so small that they will little more than admit a probe, and yet a comparatively large wound would have to be made in order to remove this bone with an ordinary curette.

It was for a case like that just mentioned that I had made for me by Messrs. Tiemann & Co. the small curette which I have named a sinus curette.



It consists of a sharp spoon, fenestrated, a quarter of an inch long and three sixteenths of an inch wide, mounted on a metallic handle five inches and three quarters long. The peculiar shape of the spoon renders it possible to pass it through an opening which will hardly more than admit a probe. When I began to use this little instrument I was much surprised to find the amount of work that it would do and the number of cases in which it was of use. In the case for which it was made I succeeded in removing a considerable area of necrosed bone from the femur through the sinus that existed, and was much gratified at having the sinuses heal immediately.

This little instrument has served me so well in many cases that I feel justified in bringing it before the profession, and hope that others may find in it as faithful a companion as I have.

Miscellany.

A Case of Diabetes benefited by Phosphorus.—In the "British Medical Journal" for November 30th Dr. Balmanno Squire says: "As new therapeutical results are probably more often the result of chance than of design on the part of the investigator, I may perhaps be held excused in communicating to you what, so far as I know, is a new and somewhat important therapeutical fact, but which, whatever it may be worth, is as certainly not the result of any premeditated design on my part.

"A gentleman, aged sixty, was brought to me on October 9th by Dr. Williams Jones, of Manchester, who wished my advice as to his patient, who for a long time had been affected somewhat severely with eczema of his face, neck, and upper limbs, including his hands. Dr. Jones had previously consulted two or three other practitioners as to his patient's condition, and informed me that his patient, who had become much worn out from want of sleep, was now willing to do whatever might be required of him. Dr. Jones also informed me that his patient had for long been affected with diabetes, for which he had treated him.

"I suggested to Dr. Jones that, in addition to the local remedies which we agreed on, the patient should take phosphorus 'perles' for the improvement of the eczema. To this Dr. Jones saw no objection. I accordingly proposed to him that the patient should take one 'perle' three times a day for three days; and that, should no nausea result from their use by the end of that time, the dose should then be increased to two 'perles' three times a day. Owing to some difficulty in obtaining the 'perles,' the patient did not commence taking them until November 1st, and, after the expiration of three days, Dr. Jones put his patient on the double dose.

"To-day (November 11th) the patient visited me at Dr. Jones's request, and certainly as to his eczema he is nearly quite well, and he tells me that he now enjoys sound sleep at night. Thus much I was quite prepared to hear. But I was a little astonished when he informed me that these were by no means the only benefits that he had derived. He was also greatly better of his diabetes, very suddenly and very markedly so. He says that for the last four or five days he has been far better in this latter respect than he has been for many months. He had been used to being obliged to get out of bed four or five times in the night to pass water; but, for the last four or five days, he had not had any call of the kind at night. The quantity that he passed in the twenty-four hours had for long been a very considerable quantity, but it had suddenly diminished in amount very notably. The urine has until quite recently been very pale in color, but now it presents a fairly natural degree of color. He suffered from constant thirst, which he was compelled to assuage frequently. He is now no longer troubled with thirst. He traveled this time from Manchester to London without wanting anything to drink on the journey, and required to get out at Bedford only to pass water. He assured me that his first journey to me was by no means so free of incidents either as to incomings or outgoings of liquid. He stated that he felt now very much better in health altogether. I requested him to pass water just before he left, but he felt so little inclination that he doubted whether he could. However, he passed about six fluid ounces.

"Although I had no reason to doubt Dr. Jones's diagnosis, I thought I would, before writing this note, obtain independent confirmation of the fact that the patient's complaint was beyond doubt diabetes. I accordingly asked my neighbor, Dr. Goodhart, to examine the urine for me. Dr. Goodhart, after remarking that the color of the urine was somewhat exceptionally good for a diabetic, found that its specific gravity was 1.032, and that it contained plenty of sugar and no albumin. He has kindly permitted me to use his name for the purposes of this note so far as concerns these facts respecting the quality of the specimen of urine that I submitted to him.

"The quantity of phosphorus that the patient took may be estimated from the basis that each of the 'perles' contained one thirtieth of a grain of phosphorus dissolved in oil. So that, for the first three

days of his phosphorus treatment, he took a tenth of a grain a day, and for the remaining seven days he took a fifth of a grain daily. From such experience as I have in the administration of phosphorus internally I should be disposed to say that he was fairly under the influence of phosphorus; moreover, he has just begun to experience a slight but decided degree of nausea from its use.

"In what manner the phosphorus has acted in controlling the diabetes, as it seems to me it unquestionably has acted, I am not prepared to offer any kind of opinion. That the administration of phosphorus acts most decidedly on the liver is well known, because, in undue and over prolonged doses, phosphorus is capable of producing fatty degeneration of the liver. This circumstance would seem to afford the clew to its marked action in this case in controlling diabetes; but I am not prepared to assert that this is the correct explanation. It is possible that the effect of the phosphorus may be due to its action on the nervous system.

"In any case, the circumstance seems to me well worthy of record in the columns of the 'Journal,' because I venture to think that, when the question comes to be sifted by observers more competent than myself, it will be found that phosphorus exerts a very potent action in the control of diabetes."

To Contributors and Correspondents.—*The attention of all who purpose favoring us with communications is respectfully called to the following:*

Authors of articles intended for publication under the head of "original contributions" are respectfully informed that, in accepting such articles, we always do so with the understanding that the following conditions are to be observed: (1) when a manuscript is sent to this journal, a similar manuscript or any abstract thereof must not be or have been sent to any other periodical, unless we are specially notified of the fact at the time the article is sent to us; (2) accepted articles are subject to the customary rules of editorial revision, and will be published as promptly as our other engagements will admit of—we can not engage to publish an article in any specified issue; (3) any conditions which an author wishes complied with must be distinctly stated in a communication accompanying the manuscript, and no new conditions can be considered after the manuscript has been put into the type-setters' hands. We are often constrained to decline articles which, although they may be creditable to their authors, are not suitable for publication in this journal, either because they are too long, or are loaded with tabular matter or prolix histories of cases, or deal with subjects of little interest to the medical profession at large. We can not enter into any correspondence concerning our reasons for declining an article.

All letters, whether intended for publication or not, must contain the writer's name and address, not necessarily for publication. No attention will be paid to anonymous communications. Hereafter, correspondents asking for information that we are capable of giving, and that can properly be given in this journal, will be answered by number, a private communication being previously sent to each correspondent informing him under what number the answer to his note is to be looked for. All communications not intended for publication under the author's name are treated as strictly confidential. We can not give advice to laymen as to particular cases or recommend individual practitioners.

Secretaries of medical societies will confer a favor by keeping us informed of the dates of their societies' regular meetings. Brief notifications of matters that are expected to come up at particular meetings will be inserted when they are received in time.

Newspapers and other publications containing matter which the person sending them desires to bring to our notice should be marked. Members of the profession who send us information of matters of interest to our readers will be considered as doing them and us a favor, and, if the space at our command admits of it, we shall take pleasure in inserting the substance of such communications.

All communications intended for the editor should be addressed to him in care of the publishers.

All communications relating to the business of the journal should be addressed to the publishers.

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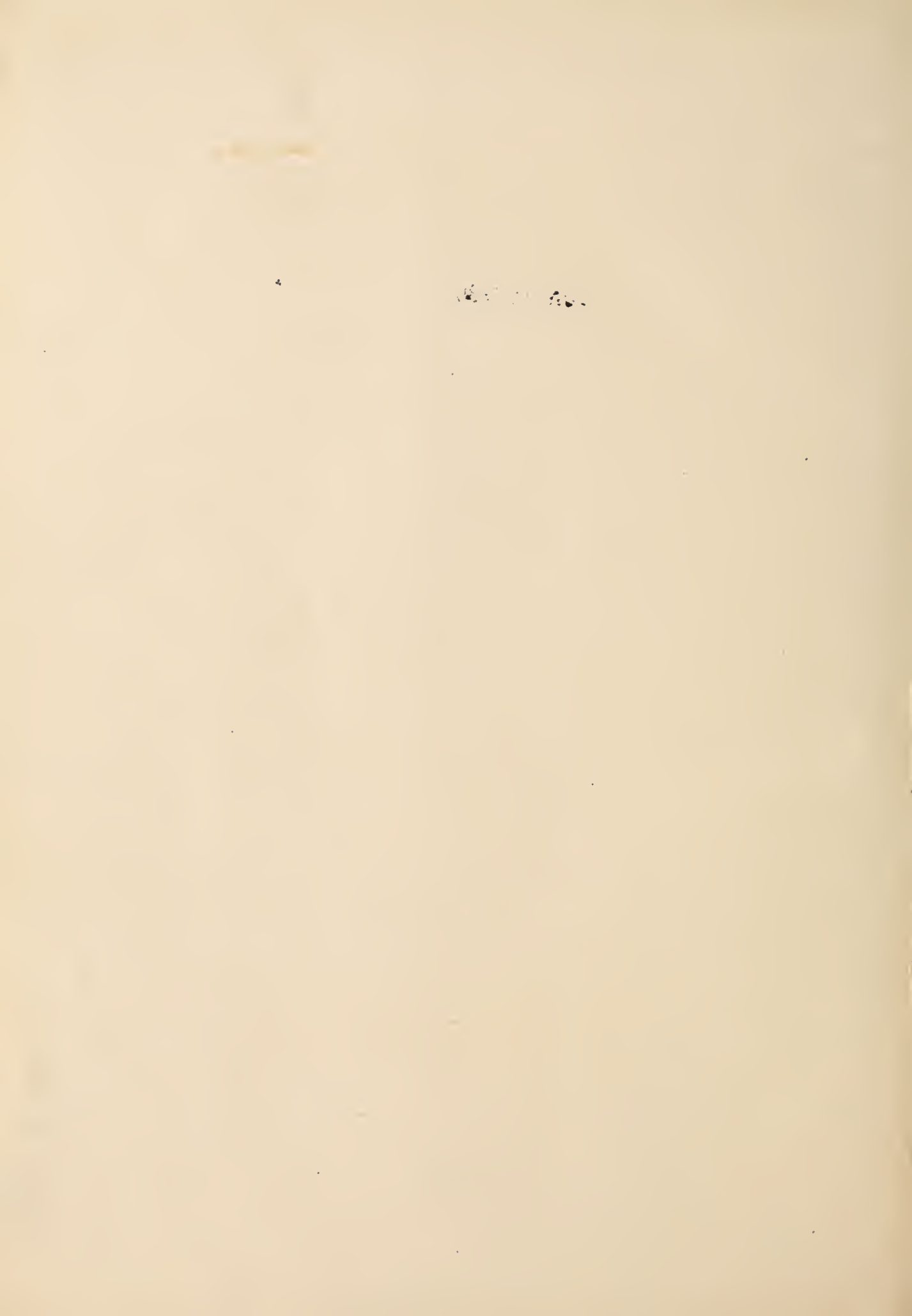
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