

## **Electric Leisure: Late Nineteenth-Century Dreams of Remote Viewing by "Telectroscope"**

**Verity Hunt**

'Just before the birth of an invention, the imminent technology belongs to a number of domains: the insane, the liar, the occult and science' (St George 101).

In June 2008, a brass 'telectroscope' (something like a huge telescope) was erected by Tower Bridge, allowing Londoners to wave at New Yorkers standing in front of a second telectroscope in Brooklyn (Figs. 1 &2).



**Fig. 1.**  
Telectroscope aperture at London City Hall showing Tower Bridge and Canary Wharf  
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Hidden inside this art installation by Paul St George, which drew on the aesthetics of mid-nineteenth-century scientific instruments, a visual high speed broadband link between the two cities was making 'real' a late Victorian dream of the technological future.<sup>1</sup> As we will see, the shape of the Victorians' imagined two-way electrical communications window was ironically far closer to existing twenty-first-century electronic screens than the nostalgic 'brass, leather and rivets' aesthetic favoured by Steampunk artists like St George (see also: Dawdy; Bowser and Croxall). St George's playful blurring of technological fact and fiction figures a particularly apt twist in the story of the imagined device, which in its own time was often incorrectly reported as real. Inspired by the development of the telegraph and telephone, and by the latest electrical inventions, which were showcased at the World's Fairs, the technology became a pervasive presence in the narratives of late nineteenth-century popular journalism and speculative literature. The telectroscope came to embody the fascination with televisual long distance seeing in late-nineteenth-century culture, and the new, emerging dynamics of Modern communication.<sup>2</sup>



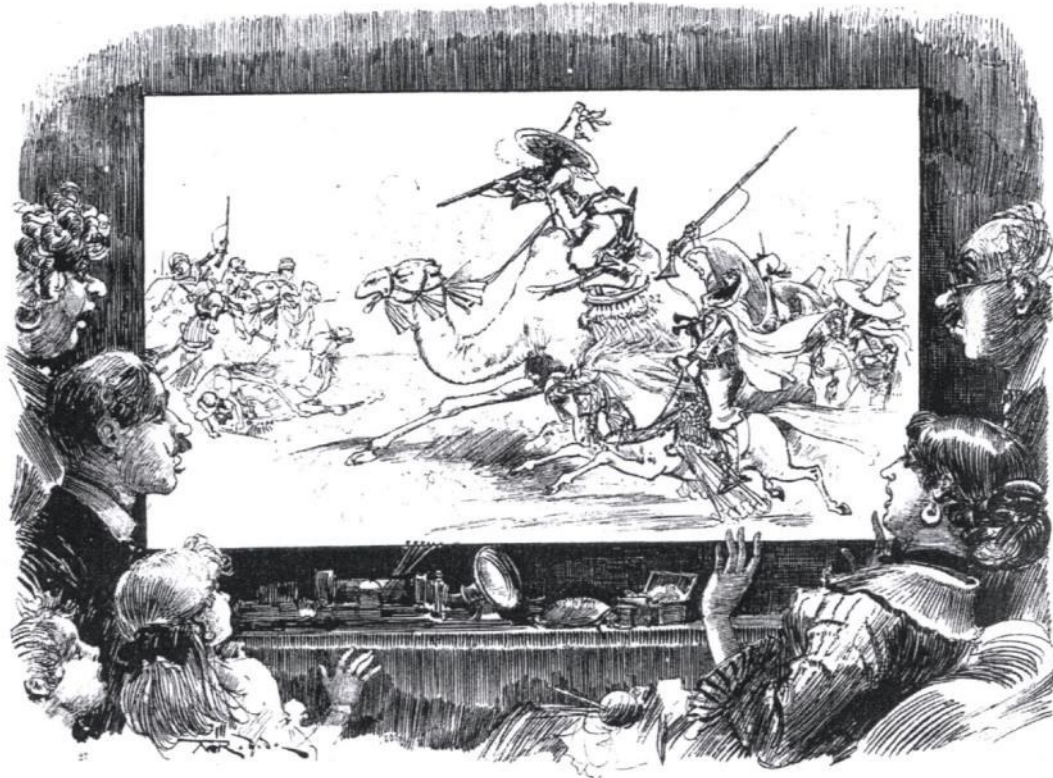
**Fig. 2.**

Telectroscope observers in London

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For reaching a vastly expanded audience, for faithfully reconstructing every detail of experience, and for freeing communication from every physical constraint, the telectroscope was celebrated by many as standing for the ultimate achievement in electrical technology (Marvin 197). The projected device would broadcast live news, theatre and pictures from around the world, and, like St George's machine, support a two-way audio/visual communication channel, similar to a twenty-first-century video phone or Skype. It would shrink distance and time to facilitate new models of home, work and education, and as this article will highlight, it would revolutionise electric leisure, facilitating virtual travel from the comfort of an armchair.

From its inception, the telectroscope's envisaged capacity to broadcast live news and entertainment was imagined as a substitute for travel, an easy, secure means of introducing strange lands and distant peoples into everyday domestic life. In this sense it ties into the historic tradition of nineteenth-century devices of scientific display (devices including the magic lantern and panorama) which promised to illuminate and re-order nature and society for popular audiences, described by Bernard Lightman in *Victorian Popularizers of Science* (2007). Indeed, electrical technology's spectacular potential to educate and amaze can be traced back to the culture of electrical exhibitions and performances that emerged in the first decades of the nineteenth century. In *Frankenstein's Children* (1998) Iwan Rhys Morus outlines how spaces for these kinds of early electrical displays ranged from the illustrious lecture theatre of the Royal Institution through the commercial, entrepreneurial Adelaide Gallery and Royal Polytechnic Institute. In other words, right from the beginning of the Victorian period, electrical experimentation straddled and connected worlds of popular entertainment and scientific endeavour. The cartoon reproduced below, showing a telectroscope drawn by Albert Robida in 1883 (Fig. 3), will be discussed in detail later.



**Fig. 3.** Albert Robida. "Witnessing a Battle in the Sahara." *The Twentieth Century*. 182. Reproduced with the kind permission of Wesleyan University Press.

It presents a Parisian family watching a live desert gun chase on camel back from the safety of their living room via the imagined electrical technology. From a twenty-first-century perspective, it is tempting to see the telectroscope as anticipating television. In the late nineteenth century, roughly contemporaneous to the emergence of the telectroscope, the theory of television was being developed. German inventor Paul Nipkow (1860-1940) patented a means of sending images over wire in 1884 (see: Hickethier). Indeed, in the field of Film and Television Studies, texts like Brian Winston's *Misunderstanding Media* (1986) have assessed the telectroscope as a precursor to television. These kinds of teleological narratives of technological development need updating (to include, for instance, today's webcam). But more than that, there is great scope for thinking about what the telectroscope has to say about nineteenth-century culture in its own right. This article will ask what the telectroscope can tell us about Victorian dreams (and nightmares) of remote viewing by electricity. It will seek to avoid technological determinism by theorising the telectroscope's emergence from a complex web of intersections between media and entertainment cultures, and new audio and ocular inventions.

It is, of course, impossible to step outside of our own historical moment whilst 'looking backward'.<sup>3</sup> Although this article will seek to blur the straight lines of traditional histories of television and film, the analysis of the Victorians' vision of the future put forward here will be unavoidably anachronistic. As Paul St George highlights, when reading Victorian speculative texts "it is not enough to say this is *the future as seen from the past*, we are looking at the past looking at the future from the future" (St George 96). We cannot envisage the telectroscope today without thinking

about its likeness to contemporary technologies, because analogy to these current, everyday technologies stand as one of our prime models for conceiving the device; as Frederic Jameson famously explains, rather than simply offering a vision of the future, Science Fiction acts to “defamiliarise and restructure our experience of our own *present*” (149). However, this sense of familiarity belies that fact that we are as unable to imagine the world in which the telectroscope was ‘invented’, as the inhabitants of that period were unable to imagine our world.<sup>4</sup> The temporal double move described by St George (the Victorians gazing into the future and the present reading the past from ‘the future’) underlines the self-reflexive relationship at stake between the two cultural moments. To be part of this relationship demands a self-conscious approach to the telectroscope’s historical contexts – awareness that twenty-first-century, Digital Era interpretations of the device unavoidably tell us more about *us* than the Victorians who first dreamt of it. Therefore, this article will seek to explore the significance of this electrical invention the Victorians never realised from a perspective engaged with the act of (re)interpretation / (re)discovery itself (for a useful general overview of current neo-victorianism, see also: Heilmann and Llewellyn).

The title of Carolyn Marvin’s *When Old Technologies Were New* (1988) precisely points towards the temporal double move at stake in reading ‘backward’ into nineteenth-century visions of the future. The book explores the telectroscope’s part in the story of the incandescent lamp, telegraph and telephone, and provides a useful starting point for this investigation. The name ‘telectroscope’ and the concept of the device first appeared not long after the telephone was patented in 1876. Following speculative descriptions of a tele-visual device in publications including *The New York Sun* (1877) and *Nature* (1878), the term ‘telectroscope’ was used by the French scientist and publisher Louis Figuier in *L’Année Scientifique et Industrielle* in 1878 to popularise the invention, which he incorrectly interpreted as real and ascribed to Alexander Graham Bell. It was hoped it would ‘do for the eye what the telephone had done for the ear’ and provide a technologised system of long distance seeing. It also owed much to the telegraph, the moving image peepshow-style device the kinoscope and, as suggested by Marvin, the electric light in terms of its conceptual grounding. Like other real contemporary popular visual formats such as the panorama, the telectroscope’s name went through various metamorphoses. Marvin’s electric media history notes the significance of Edward Bellamy’s projected “electroscope” in his futuristic utopia, *Equality* (1897) as a telectroscope by another name. However, the telectroscope may also be instantly recognised by its distinctive real-time audio/visual properties, going under variant names in the fictional creations of several other late-nineteenth-century speculative writers. Notably, the transformations of its title tend to share the endings ‘scope’, ‘phote’ or ‘photo’, from the Ancient Greek for ‘to look at’ and ‘light’, emphasising the device’s extra-visual quality, and lending it an authoritative scientific air.

This article builds on Marvin’s work by identifying the popularly imagined machine in a number of new stories and novels by French, American and British speculative writers, and putting them together via an interdisciplinary approach that situates them in their literary and technological contexts: Albert Robida’s “telephonoscope” in *The Twentieth Century* (1883), Jules Verne’s “phonotelephote” in “In the Twenty-ninth Century: The Day of an American Journalist in 2889” (1889), Mark Twain’s “telectroscope” in “From the ‘London Times’ of 1904” (1898), the Machine’s “blue optic plates” in E. M. Forster’s “The Machine Stops” (1909) and H. G. Wells’ “kinetotelephotograph” in *The Sleeper Awakes* (1910). The article first

explores how the telectroscope represented a rational technological conclusion to real scientific discoveries of the period, and the Victorians' changing conceptions of space and time. Following this it examines the telectroscope's significance in utopian visions of the future that figure the technology as a great social leveller, opening access to trade, culture and education. Finally, it considers some dystopian visions that forewarn of potential pitfalls in a telectroscopic future, like the disenfranchisement of portions of society without electricity. In his study of real late-twentieth-century culture, *Globalization: The Human Consequences* (1998), Zygmunt Bauman notes that "rather than homogenizing the human condition, the technological annulment of temporal/spatial distances tends to polarise it" (18). Certainly, in Wells's and Forster's stories, the telectroscope stands as an emblem of social deprivation and degradation in a globalised world. The analysis put forward here suggests that the telectroscope in late-nineteenth-century literature thus figures the most salient hopes and anxieties of the period for an electric tomorrow's world.

### "Electric Camera Obscura"

The Victorians seemed certain of the telectroscope's imminent invention. Indeed, the media frequently and prematurely credited prominent scientists and inventors of the day, especially Bell, Edison and Szczepanik, with producing the longed-for device. The *Electrical Review*, for instance, wrote of the telectroscope as the most promising yet of Edison's projects, confidently reporting that the device would be ready in time for the Chicago World's Fair (1893) (Marvin 197). On the one hand, the telectroscope reflects real scientific preoccupations: devices like Bell's photophone (1880) and Dussaud's telescope (1898) were based on scientific developments that allowed sound and/or movement to be translated into simple light patterns. The telectroscopes of speculative literature seem to resemble bigger, better, faster versions of these machines. On the other hand, the telectroscope's frequent appearances in stories that *predate* these real inventions seem to function as anticipatory critiques of what is happening in electrical science. For example, in George Du Maurier's *Punch* cartoon of 1878, "Edison's Telephonoscope (Transmits Light as well as Sound)", an elderly couple watch over their children playing tennis in the Antipodes via a long distance audio-visual device that we can identify as a telectroscope (Fig. 4).



Fig. 4. George Du Maurier, "Edison's Telephonoscope (Transmits Light as well as Sound)"

The caption reads:

(Every evening, before going to bed, Pater and Materfamilias set up an electric camera obscura over their bedroom mantel-piece, and gladden their eyes with the sight of their Children at the Antipodes, and converse gaily with them through the wire.)

*Paterfamilias* (in *Willow Place*): "Beatrice, come closer, I want to whisper." *Beatrice* (from *Ceylon*): "Yes, Papa dear."

*Paterfamilias*: Who is that charming young lady playing on Charlie's side!  
*Beatrice*: "She's just come over from England, Papa. I'll introduce you as soon as the game's over!" (n.p.)

This cartoon highlights the way in which the telectroscope's ability to transgress or 'shrink' distance and time makes it an instrument of everyday life; the wonderful technology intimately reconnects the elderly English couple with their beloved family on the other side of the world. In other words, it liberates the social interactions that sustain familial bonds from geographical constraints. Discussing this cartoon in *Victoriana* (2013), St George observes: "This is time travel, but perhaps this is not fantasy or frivolous science fiction. Is it more accurate to say that du Maurier is taking part in research and development towards the invention of a new device?" (97). St George holds up the cartoon to point towards a dynamic creative relationship between science and speculative literature and art, thus dispelling the traditional critical model that sees 'frivolous science fiction' come after and merely describe science. The telectroscope's power for real-time long distance audio/visual exchange represents a desired technological endpoint that is a justified response to the real scientific discoveries of the period, and the Victorians' practical and symbolic condensation of space and time, from new transport networks through to their imperial ambitions. In this sense, Du Maurier may indeed be cast as engaged in technological 'research' and innovation in the pages of *Punch*; he borrows from the technological past and present (the *camera obscura* and electrical wire) to conceive a device that embodies the technological ambitions of the *zeitgeist*. Discussing two of the authors in focus in this analysis, Philippe Willems writes:

One might characterise both Verne and Robida's fiction as crystallizing and articulating concepts present "in the air" of their times [. . .] their rational conjecture took place within a network of popular publications that, in a sense, pre-digested new scientific discoveries for the general public. (xxiii)

In other words, imagined technologies in speculative art and literature and the popular press play an active, important role in forming and clarifying cultural expectations about the shape of the scientific future to come. Moreover, in terms of real devices, historians and philosophers of science have recently begun to challenge the assumption that technologies are straightforwardly, 'obviously' made and used in response to the demands of scientific observation and experiment. Thomas L. Hankins, Robert J. Silverman and others have revealed that historically, instruments have actually "moved easily from natural philosophy to art and to popular culture" (Hankins and Silverman 5; see also: Hunt) thus blurring boundaries between natural

science and other human activity, such as entertainment. It is to speculative literature and popular culture that this article now turns.

In Jules Verne's short story, 'In the Twenty-ninth Century: The Day of an American Journalist in 2889' (1889), the protagonist Francis Bennett is editor of the *Earth Herald*. Since its beginnings as the early-nineteenth-century print newspaper the *New York Herald*, the telectroscope has transformed not only the publication's material form and the scope of its audience, but the very dynamic of its reporting:

Every morning, instead of being printed as in antiquity, the *Earth Herald* is 'spoken.' It is by means of a brisk conversation with a reporter, a political figure, or a scientist, that the subscribers can learn whatever happens to interest them. (Verne 111)

The reference to "conversation" is crucial here; exchanging knowledge at a distance is no longer confined to a 'record and retrieve' framework (as in the case of the phonograph), temporal dynamics are reordered to a new scheme of instantaneity. In the twenty-ninth-century "the telephone [is] completed by the telephote" (Verne 112). The marriage of audio and visual experience seems to be the goal for distance exchange. However, the "surprising transformations" figured by the combination of telephone and telephote are in fact "based on principles which were quite well known to our ancestors, although these, so to speak, made no use of them" (Verne 109). Indeed, Verne's hero finds it "incredible that it took [humankind] so long to work out" the theory behind combining existing technologies (109). Verne's text thus foregrounds the technological imagination over the availability of discrete devices; valorises, in other words, what it itself possesses in the present. The story represents a challenge to inventors like Edison and Bell in a technological age in which applications and combinations of devices are at least as important as original discoveries. This technological imagination is driven by imagined ways in which it facilitates and intervenes with everyday interaction and the possibilities of virtual travel and tourism predominate.

### Travel in "Slippers and Dressing-Gown"

In 1894, just a few years after Verne predicted the 'completion' of the telephone with a complementary visual communications channel, *All the Year Round* reported on Alexander Graham Bell's confidence in science's ability to imminently materialise a similar technology:

Professor Bell is convinced that in the near future it will be possible to see by telegraph, so that a couple conversing by telephone can at the same time see each other's faces. Extending the idea, photographs may yet be transmitted by electricity, and if photographs, why not landscape views? Then the stay-at-home can have the whole world brought before his eyes in a panorama without moving from his chair. (330)

Importantly, the journalist particularly emphasises the scientist's interest in the telectroscope's potential as a vehicle for virtual travel. The imperial ambition suggested by the desire to master a vision of "the whole world" is tempered only by the sense of parochialism evoked by the "stay-at-home" viewer, who commands from the comfort and privacy of "his chair." It seems the telectroscope promises a new kind of explorer, quite different from the macho, intrepid heroes in the pages of

contemporary adventure stories – *convenience* is paramount to this domestic virtual globetrotter. The model of viewing facilitated by the device blurs a series of dichotomies: home and away, safety and danger, stasis and activity, inward-looking and outward-looking.

These tensions are exemplified in Robida's "Witnessing a battle in the Sahara". Now best known for his artwork, Robida was also a popular late nineteenth-century author, writing and illustrating a series of speculative novels set in the mid twentieth century, a "*trilogie d'anticipation*" or "trilogy of anticipation." The text attended to here is the first in the series, *Le Vingtième siècle* (1883), translated as *The Twentieth Century*. It follows the adventures of Hélène, niece of Parisian multi-millionaire Mr Ponto, who has just graduated from finishing school in the provinces and returned to Paris to choose and embark upon a career. The fashionable world of the city in 1952, which is saturated with cutting-edge technological wonders, is presented through her naïve eyes as she adjusts to urban living. Robida's version of the telectroscope, the "telephonoscope," a telephone combined with a "crystal screen" (50, 52), is installed in every home and in public places in large screen format, fixed on top of buildings. In *Victorian Glassworlds* (2008), Isobel Armstrong records the cultural significance of glass and crystal in the nineteenth-century imagination (1830-1880), highlighting the point that the translucence of the material itself became emblematic of vision and travel without boundaries. It is worth mentioning here that in the context of contemporaneous materials available to science and technology in the last two decades of the nineteenth century, crystal took on particular new significance in the field of electronics. Crystal radio developed from a series of discoveries in the late 1800s that evolved into more and more practical radio receivers in the early twentieth century. The "telephonoscope" is a "wonder that allows one to see and hear at the same time an interlocutor one thousand leagues away" (Robida 43). Like Verne, Robida figures the technology as the natural counterpart of the nineteenth-century telephone and "supreme culmination" of investigations in electrical communication: it is "the epitome of our scientist's glory" (50). The telectroscope is once more presented as an endpoint in virtual communication, marking a limit to what seems technologically possible to a late nineteenth-century imagination. Indeed, the narrator asks, "What more could one want?" (Robida 50).

In Robida's picture of the Ponto family watching a desert gun battle (Fig. 3), the telectroscope stands as a means of bridging spaces of the everyday and a wider, unfamiliar outside world. The family may experience the thrill of recoiling in fear, open-mouthed at the 'alien' Arabian scene, but they rest assured in the knowledge that they are secure in their domestic surrounds: the "crystal screen" marks a threshold that cannot be crossed. As Marvin points out, the telectroscope's *one-way* function, which opens a window at the dictate of its owner, represents "a species of cognitive imperialism" (192). She suggests that what speculative journalists and novelists who wrote about the telectroscope

Hoped to extend without challenge were self-conceptions that confirmed their dreams of being comfortably at home and perfectly in control of a world at their electric fingertips [. . .] Only the scale of the community in which they imagined themselves as participants had changed. (192)

In other words, this mode of experience via the imagined technology is superficial, and worse than that, it subjugates the object of observation. Yet the bourgeois home *is* changed and unsettled by the virtual encounter: mother has dropped her knitting in



shock and raises her hands in alarm. Her physical reaction to the exotic scene highlights the verisimilitude of the technology's projection, and suggests that although the western viewers may be "perfectly in control" of the telectroscope itself, the picture it beams into their living room triggers a temporary loss of self-control. The picture may be dismissed from the room with the mere flick of a switch, but the disturbance it has created will linger in the viewers' minds, even if the imperial hierarchy ultimately remains in place. Moreover, though the Arabian figures projected on the telectroscope screen lack the technology to return the distant gazes of the Parisian family, they wield another powerful symbol of modernity, the gun. The picture encapsulates two kinds of technologised violence: an epistemic violence against the Egyptian people framed in the telectroscope's electric window, and the physical violence of mechanised death meted out by gunfire. This violent mood reflects the fact that historically speaking the cartoon comes during an especially bloody series of clashes between Egyptian nationalists and French and British military. In June 1882 there were riots in Alexandria in which several hundred people were killed, including about fifty Europeans (see: Ricardo Cole). Western pursuit and control of overseas territorial acquisitions relied upon the latest technological developments in communication, transport and weaponry. The fact that in this version of the future the coloniser's guns have transferred hands to the colonial subjects betrays contemporary French anxieties about the precarious position of 'European interests' abroad. By placing a foreign gun battle in the crystal focus of the telectroscope screen, Robida implicitly conjoins the future of the gun with the future of moving image. It is worth noting that the principle of the machine-gun and cine-camera, "to focus on and fix objects moving through space [. . .] to shoot and to film," evolved from the same technological root, Étienne-Jules Marey's chronophotographic gun, which had appeared just one year previously in 1882 (Kittler 124). Friedrich Kittler proposes that "[t]he history of the movie camera thus coincides with the history of automatic weapons" (124). Robida appears to respond to a contemporary sense that *together* versions of the two interconnected technologies will shape future imperial encounters.

Robida's cartoon highlights the fact that the 'armchair tourism' the telectroscope is associated with does not represent any kind of democratic cultural exchange – authority remains rooted in the western metropolis, the bourgeois living room to be precise. In this sense, the relationships played out across the virtual threshold of the telectroscope screen share common ground with travel and touristic narratives of the same period and their forms of gazing. In *Imperial Eyes: Travel Writing and Transculturation* Mary Louise Pratt explains that the relation of Victorian explorers to the places they "won" was "predicated between the seer and seen" (204). Looking was paramount in the colonial encounter: in the end, the act of discovery itself, for which all the untold lives were sacrificed and miseries endured, consisted of what in European culture counts as a purely passive experience – that of seeing" (Pratt 203-4). Pratt highlights how the apparently innocuous act of 'seeing' constituted a key mode of indirect imperial dominance; even when seeing does not equate to possessing in real terms, it signals aspirations to mastery. In his recent discussion of the ways of seeing at stake in late nineteenth-century British tourism and archaeology in Egypt, Martin Willis reveals "significant overlap and continuity" between the tourist's leisured, "enchanted" vision and the knowledgeable, "reconstructive" gaze of the archaeologist: the act of imagination common to both ways of looking destabilises the traditional boundary between touristic and scientific vision (122-3). The electric window onto the Orient afforded by the telectroscope provokes similarly complex,

overlapping ways of looking in its European and American audiences. As we will see, the telectroscopic "contact zone" prompts diverse ways of looking inspired by thrill-seeking and idle curiosity through interest in current affairs and scientific endeavour (Pratt 4). What these ways of looking share is the political dynamic described by Pratt – as a tool of globalization the telectroscope is an uninvited, domineering presence in the lives of many of its subjects.

The title of Edward Bellamy's *Equality* (1897) points towards an optimistic vision of the electric future free from such political hierarchies. The novel is the sequel to Bellamy's best known work, *Looking Backward 2000-1887* (1888), a vision of a millennial socialist utopia. In *Equality*, nineteenth-century man Julian West, who in *Looking Backwards* woke from a long mesmeric sleep to find himself in twenty-first-century Boston, continues to adjust to his new futuristic lifestyle. Bellamy's version of the telectroscope, the "electroscope" (140), seems in some respects to typify the kind of "cognitive imperialism" described by Marvin. It ensures that "wherever the electric connection is carried [. . .] it is possible in slippers and dressing-gown for the [stay at home] dweller to take his choice of the public entertainments given that day in every city of the earth" (Bellamy 309). This image of a leisured gentleman relaxing in the secret world of home with his pick of the world's entertainments before him, paints a picture of comfort, security and privilege facilitated by the new technology. But in keeping with the socialist ideals of his text, Bellamy also emphasises the democratising influence of the technology. He stresses that thanks to the electroscope, those in remote parts of America, faraway from theatres and concert halls, may now enjoy the same access to culture as the city dweller. Similarly, children and college students need not actually attend school or university if distance or inconvenience prohibits it, but may pursue distance learning by electroscope, so that access to the best educators is democratised. Bellamy's vision of a technologised geographical 'equality' references just one potential limitation to its seemingly boundless optimistic new horizons: the demand for an "electric connection."

Robida, Verne and Bellamy envisage the new replacement communication technologies reinforcing existing positive networks and forging new virtual ones. For Robida the telectroscope is in one important sense a particularly family orientated device. By allowing parted loved ones to keep up their everyday routines virtually, such as sharing breakfast together, real time audio-visual communication answers any potential threat to domestic unity posed by the demands of developing global markets and expanding travel networks. As Robida puts it, "[b]usiness men and women no longer hesitate to travel abroad, since they can see their families every evening at the telephonoscope office" (65). There is an interesting paradox at stake here: at the same time as rendering most actual travel obsolete, the telectroscope also facilitates, even promotes, it by offsetting its social inconveniences. Verne's phonotelephote similarly shapes everyday life in the twenty-ninth-century. As well as receiving the daily news it is used for personal exchanges. Like Robida, Verne presents a picture of domestic serenity by stressing that loved ones on opposite sides of the world may breakfast together virtually in front of the technology. He also figures the technology in business and news relays, for instance, news agencies receive messages from across the globe and from other planets via phonotelephote.

Beyond merely protecting family relations while expanding business ones, Bellamy's interest in the electroscope as a force for democratic good is connected to an ambition to expand twenty-first-century communities, strengthening modern individuals' sense of unity with a society at large, while at the same time ensuring

personal privacy. The world of home is newly safeguarded *and* intellectual horizons are opened up, Dr Leete, Julian's host and guide to the year 2000 comments:

"[W]hen we assemble now we no longer bring our bodies with us. It is a curious paradox that while the telephone and electroscope, by abolishing distance as a hindrance to sight and hearing, have brought mankind into a closeness of sympathetic and intellectual rapport never before imagined, they have at the same time enabled individuals, although keeping in closest touch with everything going on in the world, to enjoy, if they choose, a physical privacy such as one had to be a hermit to command in your day." (Bellamy 229).

From a twenty-first-century perspective, Bellamy's description of a virtual community that at once connects, and isolates, individuals perhaps unavoidably conjures thoughts of the World Wide Web. Indeed, certain critics have recently cast the new media revolution of the late nineteenth century as the cultural antecedent of our digital revolution. Tom Standage's *The Victorian Internet* (1998), for example, draws parallels between the telegraph and internet as worldwide communications networks, noting similarities between the social impact and technical underpinnings of the two technologies. Bellamy's electroscope seems to invite even more ready comparisons to the Web. However, there is an important historical fluidity at stake in the text: the speculative writer's remote viewing device represents an act of looking back as well as forward – a building up of references to existing inspirational source technologies that bring him to his conception of the telectroscope. As twenty-first-century readers, it is important to remember that remote communication and "remediation did not begin with the introduction of digital media"; telephone, photography, phonograph and so on "are all attempts to achieve immediacy by ignoring or denying the presence of the medium and the act of mediation" (Bolter and Grusin 11). As a kind of extension of the body, Bellamy's electroscope apparently takes on the work of immediate sensory experience: its visual faculty is figured as a kind of improved prosthetic eye: "the mechanical operation of the apparatus [. . .] served the purpose of a prolonged optic nerve" (182). The device promises a kind of liberation for the bodily senses: "[t]o-day [. . .] you stay at home and send your eyes and ears abroad to see and hear for you" (Bellamy 309). And in turn, this new physical freedom stretches or expands cerebral powers of sensory perception to defy the limitations of normal experience.

In Mark Twain's "From the 'London Times' of 1904" (1898), the Polish inventor Jan Szczepanik is credited with inventing the "telectroscope." The unnamed narrator's friend, Captain Clayton, argues bitterly about the usefulness of the device when Szczepanik proposes it for military service, short-sightedly dismissing it as a mere "toy" (Twain 100). So, when what appears to be Szczepanik's dead body, which has suffered a violent attack, appears in Clayton's basement, Clayton is charged with murder and imprisoned. Ironically, it is only when incarcerated that Clayton recognises the true value of the telectroscope, and calls for the device to be brought to his cell:

He called up one corner of the globe after another, and looked upon its life, and studied its strange sights, and spoke with its people, and realised that by grace of this wonderful instrument he was almost as free as the birds of the air, although a prisoner under locks and bars. (Twain 102)

The verisimilitude of the picture presented by the device is "wonderful." However, the admission that it makes him "almost" as free as a bird, only serves to underline the pathos of his captivity. No matter how lifelike the virtual experience, the gold standard remains actual physical freedom. This perhaps raises a problem for any wonderful picture seen in the telectroscope – its incompleteness reveals it for a chimera. However, the passage remains largely celebratory. As Clayton recants his earlier derision of Szczepanik and his machine, he muses to himself:

To think that it is a mere human being who does this unimaginable miracle – turns winter into summer, night into day, storm into calm, gives the freedom of the great globe to a prisoner in his cell, and the sun in his naked splendor to a man dying in Egyptian darkness! (Twain 102)

The inventor is elevated to an almost divine status, his telectroscope a particularly modern miracle. In a final dramatic twist, just as Clayton is about to be executed on the gallows, the narrator happens to look at the same telectroscope and recognises Szczepanik alive and well on the other side of the world, in Peking. A case of mistaken identity is recognised and Clayton is cleared and freed. The telectroscope thus prevents a gross miscarriage of justice, ironically saving its main doubter. It appears finally invested with the ultimate divine power – the power of life or death. So, although the telectroscope's pictures are tantalisingly illusory, in this instance the device is suggestive of providing bodily freedom as well, as it allows Clayton to walk free from prison.

#### **"Possible Indiscretions" and the Dispossessed**

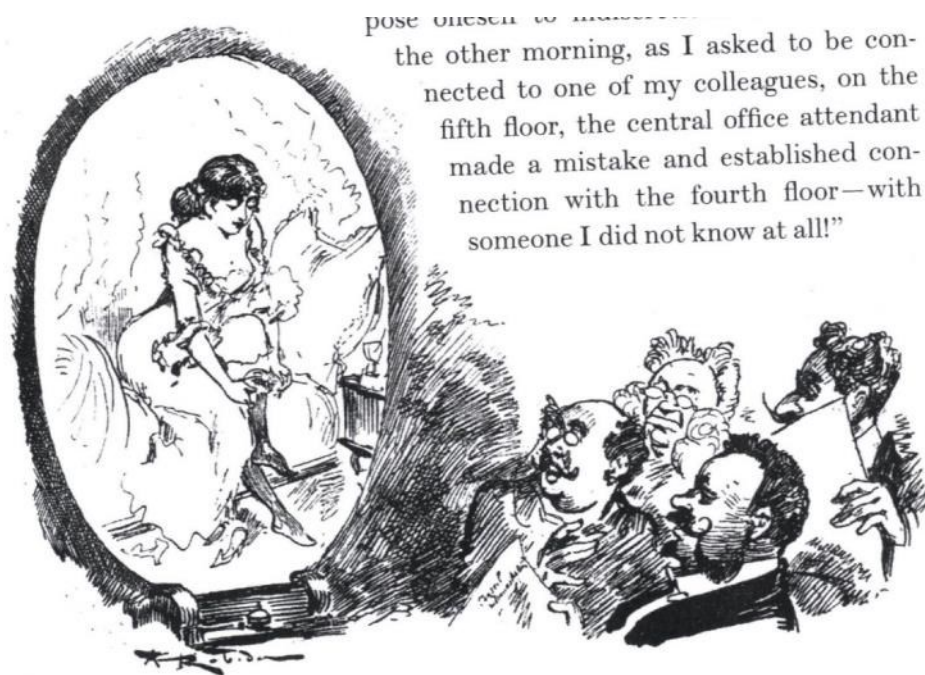
It is important to note that those of non-white or non-western cultures are not the only group objectified as entertaining subject matter for the telectroscope's crystal screen: the feminine is frequently an object of a remote virtual male gaze also. In Robida's depiction of a live theatre broadcast via telectroscope, "Mr. Ponto loved the theatre", (Fig. 5.) portly Mr. Ponto reclines on a *chaise longue* in his darkened living room and enjoys a cigar while watching a scantily clad dancing girl perform.



**Fig. 5.** Albert Robida. "Mr Ponto Loved the Theatre." *The Twentieth Century*. 53. Reproduced with the kind permission of Wesleyan University Press.

This image of an anonymous, unseen, salacious male viewer highlights the technology's power as a tool for the sexual objectification of women and its voyeuristic potential. Mr Ponto's telectroscope utilises motion-picture technology of the kind being developed by Edward Muybridge in the 1870s and 80s for his studies of animal and human locomotion. Critics have recently noted that Muybridge's studies of naked and partially clothed men and women exercising and performing domestic tasks display a prurient fascination with the female body that sits uneasily with the films' ostensibly scientific purpose. Discussing "Muybridge's prehistoric cinema," Linda Williams suggests it belongs to a moment, "when the unprecedented illusion of a filmic body acutely posed the problem of sexual difference to the male

image maker and viewer" (41). Emerging out of this same cultural moment, titillating depictions of female bodies captured in the telectroscope's crystal frame reveal that the enhanced vision of the imagined medium has similarly developed hand-in-hand with an implied male spectator's desire for visual pleasure. As a performer, the showgirl consciously invites a scrutinizing gaze: she presents both her dance and her person for visual consumption. Although presented in comic terms, perhaps even more sinister is the technology's potential as a "surveillance" device (Robida 65). Mr. Ponto warns H el ene against absentmindedly leaving her telephonoscope switched on and *transmitting*. He describes how recently he was accidentally connected with a lady who was unwittingly broadcasting real time footage of herself in her own boudoir getting out of bed. Although Ponto stresses that he politely, quickly and quietly asked for the transmission to be switched off, Robida's accompanying illustration, 'Possible indiscretions' (Fig. 6.) shows four surprised men, eyes popping, glued to a screen image of a beautiful young woman sitting on her bed, taking off her stockings.



**Fig. 6.** Albert Robida. "Possible Indiscretions." *The Twentieth Century*. 65. Reproduced with the kind permission of Wesleyan University Press.

The instruments that make dialogue possible can equally revert to one-way hierarchies, so that the private world of home is made visible to an unknown outside world. This destabilises domestic spatial delimitations with unnerving, if 'humorous', results that threaten privacy and personal security.

As previously discussed, Bellamy's vision of a technologised geographical 'equality' indicates just one potential limitation to the seemingly boundless, optimistic new horizons of the future: the demand for an electric connection. H. G. Wells takes the practical limitations of the telectroscope registered in Bellamy's twenty-first-century and sees them through to a nightmarish conclusion in *The Sleeper Awakes* (1910). He turns Bellamy's vision of a future in which distance is no barrier to

resources or communication on its head. *The Sleeper Awakes* is in some respects a self-conscious reworking of Bellamy's futuristic tales about Julian West and the Leete family. Like Bellamy's Julian, Wells's protagonist Graham is a nineteenth-century man who awakes from an unnatural trance-like sleep to find himself in an unfamiliar, futuristic, twenty-second-century world. But as Graham himself notes, there the similarities between the two characters' stories apparently end:

He thought of Bellamy, the hero of whose Socialistic Utopia had so oddly anticipated this actual experience. But here was no Utopia, no socialistic state. He had already seen enough to realise that the ancient antithesis of luxury, waste and sensuality on the one hand and abject poverty on the other, still prevailed. (Wells 59)

Unlike Bellamy and the other speculative writers who paint pictures of the future by showing people quietly going about their technologised daily lives, *The Sleeper Awakes* operates on a larger dramatic scale, and presents a version of the twenty-second-century undergoing seismic social upheavals and revolution. Rather than bridging distance and time, and allowing those who live apart to move closer virtually, new every day technologies' demand for electricity has physically reshaped the geography of entire communities. In Wells's 2100, country villages have all but disappeared and the world's population lives in mega cities. Rather than disseminating culture and education out into the provinces and beyond, the new media's demand for electrical power means that they merely reinforce old elitist geographical barriers to learning with disastrous results: "[a]fter telephone, cinematograph and phonograph had replaced newspaper, book, schoolmaster, and letter, to live outside the range of the electric cables was to live an isolated savage" (Wells 127). Bereft of printed communication, and deprived of its electrical replacements too, non-city dwellers are illiterate and disenfranchised completely. Wells's version of the telectroscope, the "kinetotelephotograph," sees traditional communities and co-operative ways of life destroyed (115).

E. M. Forster explains how his roughly contemporaneous, 1909 short story, "The Machine Stops" is "a reaction to one of the earlier heavens of H. G. Wells" ("Introduction" 6; see also: Parrinder). The particular Wellsian "heaven" Forster writes back to in "The Machine Stops" is unclear, but his distrust of a technologised electric future is patently clear in his dystopian tale, and importantly for this article, a telectroscope-like technology known simply as, "the Machine," takes centre stage. In Forster's futuristic "accelerated age" (113) the preponderance of the kind of technologised 'armchair tourism' we have seen in Robida, Twain and Bellamy's tales is escalated to debilitating, nightmarish proportions. Deep below the Earth's surface, human beings sprawl prone, "swaddled" and anaemic in their armchairs in small, individual, fully technologised cells (Forster 109). As the story begins, the protagonist Kuno's mother, Vashti, sits thus alone surrounded by:

Buttons and switches everywhere – buttons to call for food, for music, for clothing. There was the hot-bath button, by pressure of which a basin of (imitation) marble rose out of the floor, filled to the brim with a warm deodorised liquid. There was the cold-bath button. There was the button that produced literature. And there were of course the buttons by which she communicated with her friends. The room, though it contained nothing, was in touch with all that she cared for in the world. (Forster 113).

With all their wants seemingly supplied at the touch of a button, there is no cause for this generation to rise from their armchairs and venture outside their climatically controlled cells. Yet misgivings about Vashti's apparent comfort and the role of the omnipotent Machine are prompted right from the start; here the "imitation" marble basin and its "deodorised" contents signal Vashti's divorce from all that is natural and 'real', and the dehumanizing impact of her living conditions is underscored by the fact that literature, the product of high-feeling and high-thought in the Romantic tradition, is now machine-made. The narrator explains that despite her physical stasis and isolation, Vashti "knew several thousand people; in certain directions human intercourse had advanced enormously" (Forster 109). Just like Bellamy's Dr Leete, Vashti is a member of a vast virtual community, mediated by a telectroscope-style electronic audio/visual channel – in this instance a telephone combined with a hand-held "round plate" that provides the visual link (Forster 110). But Forster implies that this state of affairs is actually the inverse of the 'advance' it might at first appear: virtual communication has practically subsumed face-to-face contact and with it every last vestige of human intimacy. Deemed "clumsy" (113), public gatherings have been abandoned; indeed people avoid "one another with an almost physical repulsion" (122). Parents do not even raise their own children; – instead they leave them to grow up in distant public nurseries. Rather than facilitating family life as we have seen elsewhere, in this story the telectroscope lies behind the severing of that traditionally most 'sacred' familial bond, that between mother and child.

Michelle Yost has recently pointed out that "it is the technology that precipitates this divorce from feeling and connexion, seemingly no different from Facebook or email or Skype today" ("Fear the Machine"). Approaching Forster's text with this kind of (perhaps unavoidable) suspicion that the Machine and its devotees foreshadow the internet and our position as web users today, reveals more about current moral panics over social media than it does about the cultural moment the story emerges from. Therefore it is important to remain alert to instances where these kinds of analogy fall short; the instances of 'mismatch' between the Victorians' visions of the technological future and our experience of 'the future' are pertinent reminders of our anachronistic reading position. While the other writers discussed in this article celebrate the hyper-real quality of the telectroscope's communication channel, Forster highlights the gap between the real and the simulacrum with a view to underscoring what is lost: "the Machine did not transmit *nuances* of expression. It only gave a general idea of people" (111). It is perhaps in the 'accelerated' generation's response to this technological limitation that a key difference to the twenty-first-century 'Facebook and Skype generation' lies: while twenty-first-century interlocutors still uphold face-to-face conversation as the gold-standard of interaction, demanding ever faster connection speeds and higher resolution images, to achieve the best possible simulation, Vashti and her generation passively accept the limitations of the telectroscope's communication channel: "[s]omething 'good enough' had long since been accepted by our race" (Forster 112). In other words, the twenty-first-century drive to constantly develop and improve the media simulation of the real is replaced by a kind of technological lassitude in Forster's tale. And this goes hand-in-hand with a comparative intellectual languor: precisely because humankind now has the world at its electric fingertips, thinkers and lecturers no longer see a need for new research based on direct observation. Developing the mantra, "Beware of first-hand ideas!" they merely rehash old lectures (Forster 135). Here we see the converse spirit of the optimistic democratization of education via electroscope in *Equality*. However,



unlike his contemporaries, Vashti's son, Kuno, is dissatisfied with the second-hand existence offered by the Machine. But rather than seeking to evolve the technology, he rejects it altogether, and dares to explore the much feared 'real thing', the Earth's surface. From a twenty-first-century perspective, there is a certain irony at stake here. Forster's hero seeks to return to an earlier, more natural, way of life - ultimately the Machine falters and fails and "Humanity has learnt its lesson" – over-reliance on technology spells our downfall (146). By contrast, postmodern thinkers like Baudrillard argue that an ever-increasing "precession of simulacra" (1557) promulgated by the media in contemporary consumer society has overwhelmed the 'real thing' completely in recent years.

Forster is clear about the dangers of such a scenario. Unlike Dr Leete's electroscope that usefully extends and supplements his sensory perception, Vashti has grown so accustomed to perceiving the world via cinematophote, telephone, telegraph, gramophone and the telectroscope's round optical plate, that she has developed a "horror of direct experience" (Forster 117). When she makes a very rare trip by air-ship to visit Kuno, she is completely physically unprepared to deal with the outside world; her sensory system is overwhelmed by even innocuous unmediated sensations, from the faint smell of the air-ship to the gentle warmth of a sunbeam. Rather than supporting and advancing humanity, in this story, telectroscope technology has enfeebled it. And shockingly, humankind has willfully precipitated its physical decline via a program of eugenics tailored to the Machine's progression: "these days it was a demerit to be muscular. Each infant was examined at birth, and all who promised undue strength were destroyed" (Forster 124). Human beings are tailored to fit the Machine rather than vice versa. This is reminiscent of Robida's illustration of Mr. Ponto reclining on his *chaise longue* in darkness, watching a dancing girl via his telectroscope whilst he comfortably enjoys a cigar; – Forster escalates the decadence at the heart of Robida's image of electric leisure through to its logical but nightmarish conclusion. The narrator comments: "Humanity, in its desire for comfort, had overreached itself" (Forster 138). Forster, like so many of his turn-of-the-century contemporaries, warns that the pursuit of sensual pleasure at all costs, combined with the unprecedented stresses of modern life, may result in an emotional and physical 'degeneration' of the species (for more on late-nineteenth-century anxieties about atavism and 'degeneration' see: Ruddick). The narrator belligerently asks: "Man must be adapted to his surroundings, must he not?" (Forster 124-5). The evolutionary overtones here are clear: in a fully technologised environment humanity will eventually adapt to fit accordingly, even if that demands a counterintuitive physical enfeeblement before its machines.<sup>5</sup>

All the speculative texts discussed here share a common interest in the telectroscope's power to transform a sense of space and spatial relations, between people, nations, even planets. A spirit of curiosity and discovery prompts observers to open the electroscope's electric window onto faraway lands and foreign peoples (albeit a mood often shaped by a troubling political dynamic). In Forster's story, as in most of the others, physical travel has been rendered largely obsolete by technologised armchair tourism. But Forster pushes this move one step further, the whole draw of tourism itself, the appeal of new sights and experiences out of the everyday, has been nullified by a global homogenization of culture:

[T]hanks to the advance of science, the earth was exactly alike all over. Rapid intercourse, from which the previous civilization had hoped so much, had ended by defeating itself. What was the good of going to Peking when it

was just like Shrewsbury? Why return to Shrewsbury when it would be just like Peking? (125)

The 'otherness' of Peking (held up as a benchmark of the kind of 'exotic' land excitingly opened up by the telectroscope in Twain's story) has been ironed-out by a process of cultural imperialism. The telectroscope has so successfully exported the dominant culture of the western world that it has reduced this once thrillingly 'foreign' Chinese city to a dull state of parochial familiarity, signaled by its likeness to the English market town of Shrewsbury. Moreover, this flattening out of national differences works both ways; 'overexposure' to eastern/non-British culture has destroyed a sense of Englishness too, so that Shrewsbury has become disquietingly "just like Peking." The cultural consequence of the "rapid intercourse" heralded by science's development of the new media is not the communitarianist dream seen in other fictions (an enlightening and profitable exchange of ideas) but a blanket "hybridization' of top culture – the culture at the globalised top" (Bauman 3).

Kuno points out that this loss of national identity should give humankind particular reason to worry because it goes hand-in-hand with a loss of humanity: "You know that we have lost our sense of space. We say 'space is annihilated', but we have annihilated not space but the sense thereof. We have lost a part of ourselves" (Forster 125). Because the Machine has divorced humankind from nature (via its mediated, secondhand sights and sounds), it has alienated this generation from a sense of its own physicality and destabilised the parameters of individual sensory perception. This lack of spatial awareness is reflected by the fact that Vashti's generation is physically infantilised by the Machine: on the rare occasions they raise themselves from their armchairs they totter and stumble like toddlers. Once distance becomes measured by the reach of long distance technology, rather than the reach of unaided bodily effort (distances that may be climbed, swum, hiked and so on) any sense of humanity's place in the world becomes skewed. And not only in a physical sense, Forster implies that physical well-being is holistically interconnected with mental and spiritual health. A life out of touch with bodily experience is, he suggests, a life only half lived: "Man is the measure [. . .] his body is the measure for all that is lovable and desirable and strong" (Forster 125).<sup>6</sup> This generation's physical atavism (triggered by their overreaching ambition and lazy overreliance on technology) has been paralleled by a commensurate moral decline, thus a sense of what is "lovable and desirable" has been imperiled. In this bleak version of the future, the negative repercussions of electric leisure extend across physical, intellectual and moral lives with calamitous results.

### **The Pleasures and Perils of Remote Viewing**

During the span of the thirty or so years between Alexandra Graham Bell first patenting the electric telephone (1876) and Thomas Edison demonstrating the first talking motion picture (1910), pioneering work was done in the field of electrical technologies of communication and representation. The period saw new electrical devices (including the telegraph, telephone, phonograph, cinematograph and electric light) become commonplace, everyday tools. The strength of the late-Victorians' belief that, for better or worse, the telectroscope was just around the corner is perhaps not surprising. As the world waited impatiently for Bell, Edison and their colleagues to materialise the device, speculative fiction and art explored the potential shape of a telectroscopic future, and played a key role in forming and clarifying cultural expectations about electrical innovations to come. Stories of this period featuring the telectroscope differ dramatically in their relative optimism/pessimism about the

potential social and scientific impact of the technology. Perhaps the most familiar literary telectroscope, the two-way "telescreens" in George Orwell's *Nineteen Eighty-Four* (1949) that facilitate Big Brother's terrifying reign of mass surveillance, lies outside the historical period in focus here. However, it is worth noting that the telectroscope's appearance in a mid-twentieth-century speculative text, that comes *after* film and television had become established media, highlights the fact that the imagined device is not merely a precursor to these forms, an instance of the Victorians 'misunderstanding' their technological future. Rather the telectroscope stands for a particular model of viewing in its own right, which has not yet been (and perhaps cannot ever be) 'fulfilled'. Whether the telectroscope is figured bringing modern families together around a virtual breakfast table, or tearing parents and children apart; democratizing access to education, or broadcasting rehased, second-rate lectures; profitably connecting virtual communities, or disquietingly isolating individuals; all the writers discussed here appear to agree on the telectroscope's central role in tomorrow's electric leisure, and its fundamental importance as a force for globalization. And even in the most optimistic stories, this globalization via the electric window of the telectroscope spells an (often uninvited) new form of subjugation for many, as old hierarchies of race and gender are reinforced within the frame of its crystal screen. As this article has highlighted, tales of the telectroscope do not generally operate on a large dramatic scale, rather they are usually stories of everyday life, domesticity and workaday routines. And yet on close inspection, the overriding desire that lies behind all of the tales of telectroscopic dreams, a desire for *comfort*, proves surprisingly pernicious. The pursuit of the comfort of armchair tourism via telectroscope always comes at a cost: from the fitness of the viewer (Mr. Ponto's portly physique in Robida's illustrations offers a subtle clue to the sedentary nature of the modern good life), through an ironing-out of the very cultural differences that tourism seeks out and (nominally) celebrates. It seems that for all its advantages, the 'ultimate' comfort of electric remote viewing ironically only generates new sources of tension and constraint in tomorrow's world.

## Notes

1. For more on Paul St George's 'telectroscope' see: "You could really get sucked in..." as well as the artist's webpage ([www.paulstgeorge.com](http://www.paulstgeorge.com)). St George recently created a smaller prototype telectroscope modelled on Geißler tubes and Crookes tubes, devices that anticipated the Cathode ray tube, for the 'Victoriana' exhibition at the Guildhall Art Gallery, London (7<sup>th</sup> September to 8<sup>th</sup> December 2013).

2. It is important to note that experiments in psychic ability and psychical phenomena are often presented in speculative literature of this period as potential additions, substitutes even, for new kinds of electrical long distance, real time communication technology. This reflects overlap between two contemporary fascinations, electrical science and spiritualism and psychical research. For more on this subject, see During.

3. Discussion of Bellamy's best known novel, *Looking Backward 2000-1887* (1888), a vision of a millennial socialist utopia, will follow shortly. The time travelling protagonist's move from the author's present world of 1887 to a future world of 2000, from which he looks back on the nineteenth-century past, very much echoes the temporal shifts this article is interested in.

4. The impossibility of this imaginative leap (from present to future and back again) is highlighted by Ludwig Wittgenstein: "When we think of the world's future, we always mean the destination it will reach if it keeps going in the direction we can see it going in now; it does not occur to us that its path is not a straight line but a curve, constantly changing direction." (qtd. in *The Future of Philosophy* 2).

5. Given Forster's allusion to Wells in his "Introduction" (6), the latter's Eloi and Morlocks in *The Time Machine* (1895), perhaps the most famous turn-of-the-century tale of degeneration, spring to mind here. Similarly to the Eloi, Forster's "accelerated" generation have apparently solved all problems that require physical strength and so have become physically childlike.

6. Forster's concerns here resonate with those presented in his novel of the previous year, *A Room With A View* (1908). In the face of Edwardian middleclass prudery and snobbery, the character George Emerson stands for the importance of vitality, truthfulness and physical passion. His father, Mr Emerson, advises Lucy Honeychurch: "love is of the body; love is not the body, but of the body" (223); George and Italy represent a balance between culture and emotion, and intellect and simple humanity, which most of the other repressed English characters have lost.

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