



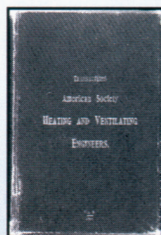
The ASHRAE Centennial: 100 YEARS OF PROGRESS



Barron



Bates



Transactions of the American Society of Heating and Ventilating Engineers



Semi-Annual Meeting, 1899



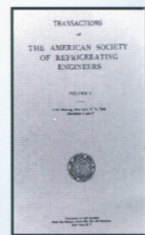
Sackett & Williams Printing Plant



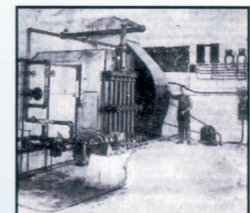
Ross



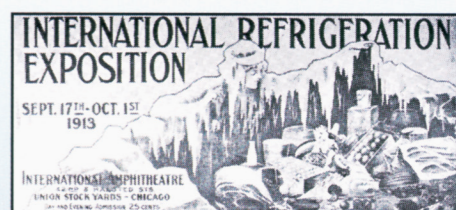
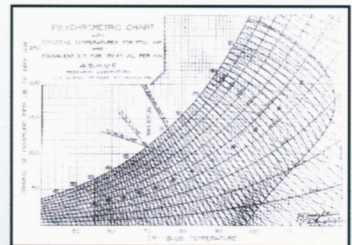
Starr



Transactions of the American Society of Refrigerating Engineers



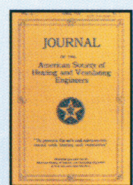
The South's First Air Conditioner



INTERNATIONAL REFRIGERATION EXPOSITION

1894

Hugh Barron, upset by the National Association of Master Steam and Hot Water Fitters' failure to appreciate an engineer's feeling in regard to technical matters, leads an effort to establish a new engineering society.



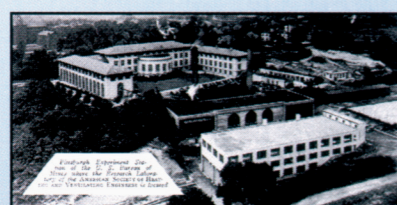
Ingels



1895

On September 10th, in New York City, The American Society of Heating and Ventilating Engineers is established with 75 charter members.

Edward P. Bates is installed as the President of ASHVE at the first Annual Meeting in January.



Research Bureau - 1919

1899

The first edition of the ASHVE Transactions is published.

ASHVE holds its third semi-annual or "summer" meeting in Sarasota Springs, NY.

1901

Alfred Wolf designs a 300 ton co-generation HVAC system for comfort cooling and humidity control of the New York Stock Exchange.



1902

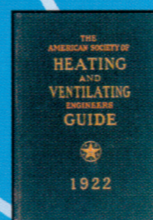
Willis Carrier, working for the Buffalo Forge Company, designs a spray-type temperature and humidity control system for the Sackett & Williams printing plant, Brooklyn, NY.



Carrier

1904

Refrigeration engineers, led by William Ross, organize to form a new organization to meet the needs of an expanding industry.



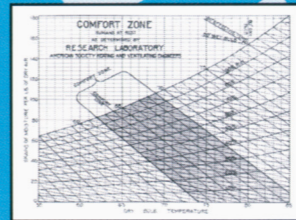
1922



Ingels

1905

The American Society of Refrigerating Engineers is founded on December 5th in New York.



Comfort Zone

1906

Volume I of the ASRE Transactions is published.



REFRIGERATING PLANT THOMAS BAK-2-101

1908

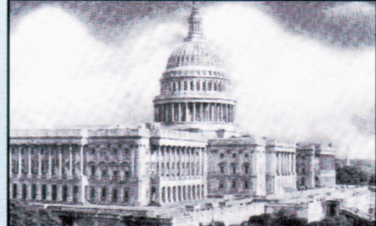
Stuart Cramer, a North Carolina textile engineer, coins the term "air conditioning."



Cramer

1908

The First International Congress of Refrigeration is held in Paris, France.



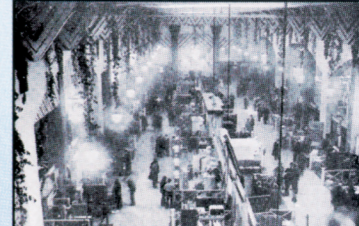
U.S. Capitol Building

1911

Willis Carrier presents historic paper, "Rational Psychrometric Formulae," and publishes his psychrometric chart.

1912

ASRE sponsors research at the U.S. Bureau of Standards to determine the heat of fusion of ice.



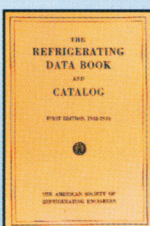
Refrigeration System

1913

The first international exposition devoted exclusively to refrigeration.

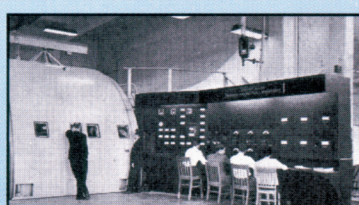
1915

Journal of ASHVE begins publication.



1916

Margaret Ingels becomes the first woman in the world to earn a degree in mechanical engineering.



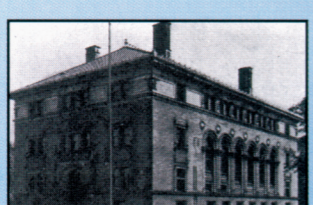
Wind Tunnel

1917

Helen Innis becomes the first female member of ASHVE; joined shortly thereafter by Margaret Ingels.

1918

Kelvinator introduces an automatic electric refrigerator for household use.



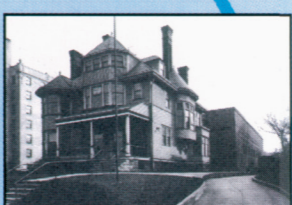
Research Laboratory - 1944

1919

ASHVE opens a research laboratory in the facilities of the U.S. Bureau of Mines in Pittsburgh.

1921

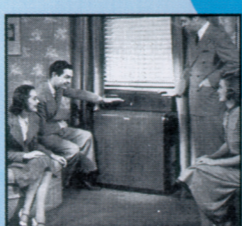
John Allen is named Director of the ASHVE Research Bureau.



Research Laboratory - 1946

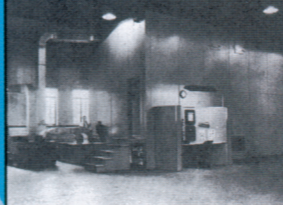
1921

A package chiller using a centrifugal compressor with dichloroethylene refrigerant is developed by Willis Carrier.



1922

Dean F. Paul Anderson is named the new Director of the Research Laboratory.



Environmental Laboratory

1922

The first edition of the ASHVE Guide is published.

1923

Margaret Ingels joins the staff of the ASHVE Research Laboratory.



Refrigerator

1923

Dr. Mary E. Pennington, regarded as the foremost American authority on home refrigeration, is named Chairman of the Advisory Board, Household Refrigeration Bureau.



Pennington

1925

The Comfort Zone was established by ASHVE in cooperation with the U.S. Public Health Service and the Bureau of Mines after studying physiological reactions to temperature, humidity and air movement.



TV Dinner

1925

The summertime increase in ticket sales at the Rivoli Theater in New York greatly exceeds the cost of newly installed air conditioning.



Boling



President



Hess

1928

Clarence Birdseye files for the first of many U.S. patents pertaining to the quick-freezing of foods.



ASHRAE JOURNAL

1929

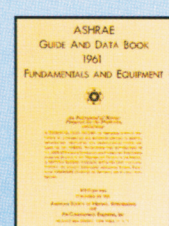
Thomas Midgley and others synthesize CFC refrigerants for Frigidaire at the General Motors Research Lab.



Headquarters, New York

1930

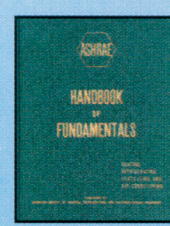
First International Heating and Ventilating Exposition opens in the Commercial Museum, Philadelphia, on January 27th.



ASHRAE GUIDE AND DATA BOOK (1963)

1932

ASRE publishes the Refrigerating Data Book.



1938

Standard B9-1930, Safety Code for Mechanical Refrigeration is published by ASRE.

1942

A study of Detroit Edison workers shows a 51% increase in productivity after comfort cooling is installed.

1944

Wind tunnel built for National Aeronautics Advisory Committee featuring a 20,000 ton cooling system.

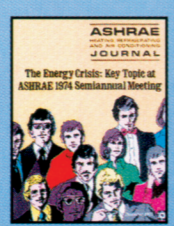


1944

ASHVE Research Laboratory moves to leased facility in Cleveland, Ohio.

1946

ASHVE buys a permanent facility on Cleveland to house the Research Laboratory.



ASHRAE JOURNAL

1948

Textile workers strike in North Carolina over stressful temperature and humidity conditions, making air conditioning a bargaining issue.



ASHRAE STANDARD

1950

Major study shows families living in air conditioned homes sleep longer in summer, enjoy their food more and have more leisure time.



Bellevue-Stratford Hotel, Philadelphia

1951

The Environmental Laboratory is opened at the ASHVE Research Lab.



Headquarters, Atlanta

1953

Room air conditioner sales surpass 1 million units; demand far exceeds supply.

1954

ASHVE changes its name to American Society of Heating and Air Conditioning Engineers (ASHAE).



U.S. Capitol Building

1955

A Time Capsule containing significant Society materials was sealed at the 50th anniversary meeting of ASRE and placed at the Franklin Institute of Philadelphia.



ASHRAE INSIGHTS

1958

Mass marketing of frozen dinners begins; ads promote "TV Dinners"



Earth

1959

In December, members of both ASRE and ASHAE vote in favor of a merger.



ASHRAE STANDARD

1959

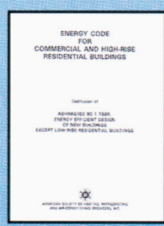
On January 29, ASHRAE officially begins operation.



City Skyline

1961

The ASHRAE Journal makes its debut.



ASHRAE HANDBOOK OF FUNDAMENTALS

ASHRAE Headquarters is established in the United Engineering Center in New York.

In the face of rising costs, the Research Laboratory is closed after 42 years of operation; ASHRAE research continues through other facilities.

The ASHAE Guide and ASRE Data Book are combined into ASHRAE Guide and Databook.



ASHRAE Centennial 1894-95 ~ 1994-95

1967

The ASHRAE Handbook of Fundamentals begins publication.

1969

ASHRAE celebrates 75th Anniversary - membership approaching 25,000.

1972

Neil Armstrong and Buzz Aldrin walk on the moon in space suits with life support and cooling systems.

1973

The International Air-Conditioning, Heating, Refrigerating Exposition is held in New Orleans; the first exposition to be co-sponsored by ASHRAE and ARI.

1975

Rising fuel prices lead ASHRAE to take major role in energy management.

1976

ASHRAE Standard 62-73, "Standards for Natural and Mechanical Ventilation," is approved.

1976

"Energy Conservation in New Building Design" has a major impact on U.S. building codes.

1979

Indoor air quality becomes an issue following outbreak of Legionnaire's disease at a Philadelphia hotel.

1981

The Department of Energy calls on ASHRAE to help implement the "Emergency Building Temperature Restrictions" Program.

1982

ASHRAE International Headquarters established in Atlanta, Georgia.

1982

ASHRAE Standard 62 is revised and re-named "Ventilation for Acceptable Indoor Air Quality."

1986

ASHRAE "Insights" is first published, providing in-depth Society news.

1989

United Nations Montreal Protocol for the protection of the earth's ozone layer is signed; new refrigerant technology becomes a major industry issue.

1992

ASHRAE Standard 62 is again revised.

1992

Updated ASHRAE Standard 90.1 sets new minimum requirements for energy efficient design of buildings.

1994

A record \$2.3 million in funds is allocated for ASHRAE research.

1994

ASHRAE/IES 90.1-1989 is codified and titled "Energy Code for Commercial and High-Rise Residential Buildings."

1994

ASHRAE enters its Centennial year with 50,000 members in 120 nations and 154 local chapters.

AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS