

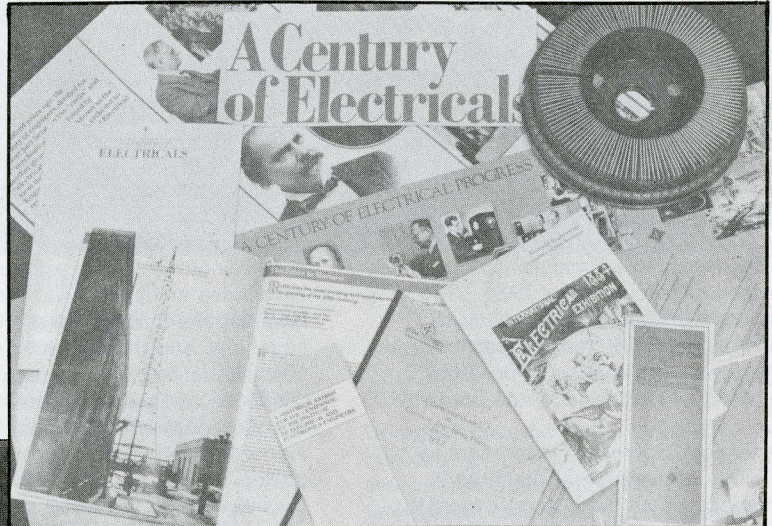
IEEE CENTER FOR THE HISTORY OF ELECTRICAL ENGINEERING

Newsletter

Number 10 Fall 1985

"Friends of the Center" Established

The Friends of the IEEE Center for the History of Electrical Engineering has just been created to increase participation in the history activities of the IEEE. The purpose of the Friends is to further the development and understanding of electrical engineering's history and impact on society through support of special projects of the Center.



Bedgraphics

June Squire



Publications and exhibits are just two of the Center's programs which can benefit from the support of the Friends

The History Committee and the Center have been fortunate to receive substantial support over the years from the IEEE Life Member Fund. Two major programs sponsored on an annual basis by the Fund are the IEEE Fellowship in Electrical History and the Graduate Summer Internship. The support envisioned from the Friends is for projects above and beyond these continuing programs of the Life Member Fund. The projects for the Friends span the spectrum of the work performed and sponsored by the Center.

The largest one involves the publication of SAMCREST (Survey of Archival and Manuscript Collections Relating to Electrical Science and Technology). The preparation of SAMCREST, a catalogue describing over one thousand such collections in the

United States (see *Newsletter* No. 7), is in the final editing stages before publication in book form and in microfiche. Supplementary volumes are planned for newly-identified collections in the United States, and material is being gathered for an international SAMCREST.

Another project requiring publication support is the report of the Wheeler Gift survey (see *Newsletter* No. 8). Performed by a summer intern under a grant from the IEEE Life Member Fund, the survey is complete and the report is being written. Additional support of the project will ensure that its results reach a wide audience.

The Center would also like to have its collection of oral history tapes transcribed so that they may be of more use to

researchers. One set of tapes, made under the direction of the IEEE History Committee in the 1970s, consists of interviews of such well-known engineers as Alfred N. Goldsmith and Vladimir Zworykin. Later tapes record the recollections of prominent RCA researchers, leading participants in the AIEE-IRE merger, and the associates of Frederick E. Terman (see *Newsletter*, No. 8).

Many other projects will be possible with help from the Friends. Among those being considered are exhibits and booklets on the history of particular phases of electrical and electronics engineering, a microelectronics history project, conferences of historians and engineers to discuss issues in electrical engineering history, additional oral history interviews, a bibliography of biographical information on electrical engineers published in the technical journals since 1900, and a bibliography of recent articles on the history of electrical engineering.

IEEE members and non-members alike can become Friends of the Center by making a contribution to the Friends Fund of the IEEE Foundation. The Fund is administered by the Friends Committee of the Foundation. Information on becoming a Friend will be mailed to *Newsletter* readers in early November.

WORK IN PROGRESS

John H. Bryant (Department of Electrical Engineering and Computer Science, University of Michigan) is writing a book on the history of microwave science and technology from the investigations of Hertz in the late 1880s to the development of microwave devices after World War II. One of the major themes of the book will be the fruitful relationship between science and technology in this field.

Gail Cooper (Division of Mechanical and Civil Engineering, National Museum of American History, Smithsonian Institution) has been granted a Smithsonian Institution pre-doctoral fellowship for 1985-1986 to complete work on her dissertation, "Manufactured Weather: A History of Air Conditioning in America, 1906-1979" (University of California, Santa Barbara).

Donald A. MacKenzie (Department of Sociology, University of Edinburgh) is writing a book on the history of inertial guidance systems. Focusing on the work of the German V-2 rocket group, Charles Stark Draper's research at MIT, and the work of John Moore and others at Autonetics, the book will investigate the role of government, military, and commercial markets in the development of the inertial guidance industry, while also examining the influence of related technologies on this industry.

Carolyn Marvin (Annenberg School of Communication, University of Pennsylvania) is completing a book on the social history of the electric light and telephone as communications media in the United States in the third quarter of the 19th century. Professor Marvin chose to examine these media because they antedate radio and cinema, the traditional subjects of most studies in this area. The

main sources for her book are the electrical trade journals, where the many social conflicts about the introduction of the electric light and telephone are discussed by electricians and other electrical workers.

Paul J. Nahin (Department of Electrical and Computer Engineering, University of New Hampshire) is completing a biography of Oliver Heaviside. Working from the Heaviside papers at the Institution of Electrical Engineers in London and Heaviside's voluminous mathematical publications, Dr. Nahin will deal with Heaviside's many technical contributions, including the formulation of "Maxwell's equations" and the derivation of a transmission-line theory later used in telephony and power networks. Dr. Nahin will also consider the role of Heaviside's eccentric personality in the reception of his work.

Work in Progress at the Center for the History of Electrical Engineering

Substantial progress on several of the Center's long-term projects has been made this summer. SAMCREST, the Survey of Archival and Manuscript Collections Relating to Electrical Science and Technology, is in the final editing stages, with publication expected during 1986. Information on over 1,000 collections has been entered and indexed in a computerized database, allowing searches to be made under a variety of criteria. Also in preparation is the final report of the survey of the Wheeler Gift of books, pamphlets and periodicals, supported by the Life Member Fund. The location and physical condition of over 6,000 titles have

been checked, and this data is being examined both quantitatively and qualitatively.

Within the Center itself, the processing of the archives of the IEEE has begun. These records had been gathered together and inventoried when the Center was founded in 1980, but not arranged and described. A finding aid to the collection will be available early in 1986. Two new Center exhibits are also on view at IEEE headquarters. The main exhibit spotlights the Electrical Engineering Milestones program, incorporating photographs, books, maps, memorabilia, and text to illustrate the first three Milestones – the transatlantic cable of 1866, the reception of transatlantic radio signals in 1901, and the Westinghouse "Atom Smasher." 1937 – while a smaller display in the United Engineering Center lobby focuses on the 25th anniversary of the first operating laser.

MEETINGS

International Colloquium in Paris

The Association pour l'Histoire de l'Électricité en France is organizing an international colloquium on the history of electricity, to be held in Paris, 15-17 April 1986. A call for papers representative of the current state of historical research on electric power technology in Europe and the United States has been issued. Papers should be presented in English or French; a simultaneous translation service is being arranged. Those interested in presenting a paper should send a proposal before 15 November 1985, including their name, title, address, the title of their paper, and a five to ten line abstract, to Mme. Fabienne Cardot, AHEF, 47 rue de Monceau, Paris, France 75008. Further information can be obtained from Mme. Cardot.

Science and Technology Conference in Hungary

A call for papers has been issued for an international conference on "The Development of Science and Technology in Central Europe Between 1918-1938," to be held in Keszthely, Hungary, 13-17 October 1986. Papers on such topics as education, the role of women, specific scientific discoveries, inventors and scientists, important scientific and technological institutions, and the development of medicine and health service, will be considered. Proposals for talks should be sent prior to 30 January 1986 to Professor Ferenc Szabadváry, Chairman of the Organizing Committee, MTESZ Tudomány és Technikatörténeti Bizottság, Budapest V., Kossuth Lajos tér 6-8, 1055 Hungary.

The Institute of Electrical and Electronics Engineers

IEEE History Committee – 1985

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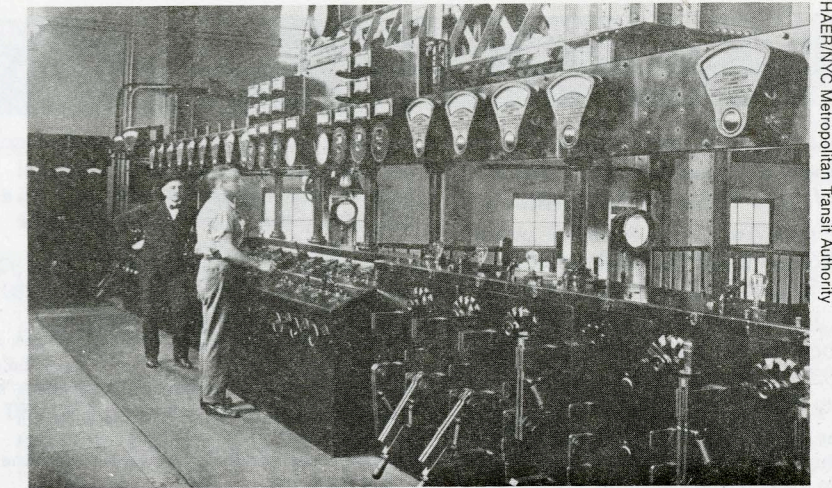
Ronald Kline, Director
Joyce E. Bedi, Curator
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Closer Ties for HAER and IEEE

In a meeting held on 9 July 1985, Center for the History of Electrical Engineering Director, Ronald Kline, and Robert Kapsch, Chief, Historic American Buildings Survey (HABS)/Historic American Engineering Record (HAER), discussed ways in which the two organizations can work together in documenting, publicizing, and preserving important sites in electrical engineering history. One possibility suggested was the documentation by HAER of IEEE Electrical Engineering Milestones, such as the Westinghouse "Atom Smasher."

HAER was established in 1969 by an agreement among the National Park Service, Library of Congress, and American Society of Civil Engineers to document the technological heritage of the United States. HAER prepares archival documentation on important structures and industrial processes throughout the US and its territories, both to encourage their preservation and to make sure that if they are lost, a permanent record will remain. Engineering and other professional societies provide counsel and some financial assistance on selected projects. The Library of Congress houses and maintains the records and makes them available to the general public as research material.

Documentation projects and publications focus on individual sites or systems, usually organized by geographic and political area or by industrial type. HAER thus records individual sites and structures – for example, the Sault Ste. Marie, Michigan, hydroelectric plant – as well as technological networks, like the



An IRT station, 1918

Interborough Rapid Transit subway in New York City.

Highest priority is given to sites of major significance that are in danger of demolition. In many cases, this data gathered by HAER may be the only lasting record of a site's existence. Like Electrical Engineering Milestones, sites and systems documented by HAER must meet certain criteria. They must be

- an engineering invention or innovation of importance to the economic or industrial development of an area, a region, or the nation
- significant in the history of a particular branch of engineering
- designed or built by famous engineers, mechanics, architects, or master builders
- typical of an early engineering or industrial structure commonly used throughout an area for a specific purpose

of considerable value is a first edition of Ohm's *Die Galvanische Kette* (1827), the classic text of Ohm's Law. The Center for the History of Electrical Engineering assisted in the arrangements for the donation.

BRIEFS

Gift to Burndy Library

A fine collection of thirty-five early books and pamphlets on electricity and magnetism has recently been added to the Burndy Library in Norwalk, CT, through the generosity of Mr. Beverly Dudley. Former editor of *The Technology Review*, Mr. Dudley assembled the collection during his long career in electrical engineering. The books and pamphlets span the years 1742 to 1860, with the rich period of the early 1800s well represented by the works of such physicists as Ampere, Biot, Ohm, and Seebeck. Two books by Ampere, published in 1822, are especially noteworthy because they were not previously held by the Burndy Library. Also

- the sole remaining example or a representative example of a specific type

Complete documentation by HAER includes historical reports on each site, measured architectural drawings, professional photographs, and support material such as historic photos, drawings, and maps. This material is deposited in the Division of Prints and Photographs, Library of Congress, where it is available to researchers without restriction.

For further information, contact the Historic American Buildings Survey/Historic American Engineering Record, National Park Service, US Dept. of the Interior, P.O. Box 37127, Washington, DC 20013. *Newsletter* readers are also directed to "HAER and Electrical Engineering," by Donald C. Jackson, which appeared in the November 1984 issue of *IEEE Transactions on Education* (vol. E-27, no. 4, pp. 211-217).

Control Systems History

A splendid example of the increased interest in history brought about by the IEEE Centennial is the recent formation of a History Committee by the IEEE Control Systems Society. Chaired by Jane Cullum, a member of the Board of Governors of the Society, the Committee consists of prominent contributors to the development of control systems: George S. Axelby, Louis F. Kazda, Nathaniel B. Nichols, John E. Ward, and John Zarborsky.

The task of the Committee is to prepare a broad history of the theory, technology,

and institutions of the control systems discipline. Among the professional organizations to be included in the study are the American Automatic Control Council, the appropriate sections of the American Society of Mechanical Engineers and the American Institute of Chemical Engineers, the Institute of Radio Engineers Professional Group on Automatic Control, and its successor, the IEEE Control Systems Society.

Dr. Nichols, who is also on the IEEE History Committee, is preparing summary biographies of some of the key individuals, and the Committee is looking into appropriate repositories for the historical records of control system engineers. If you have information to contribute, please contact Jane Cullum, Manager Applied Mathematics, IBM Research, T.J. Watson Center, P.O. Box 218, Yorktown Heights, NY 10598.

NEW PUBLICATIONS

The Newsletter's "Publications" section was prepared with the assistance of Thomas J. Higgins of the University of Wisconsin.

Books

Hugh G.J. Aitken. *The Continuous Wave: Technology and American Radio, 1900-1932*. Princeton, NJ: Princeton University Press, 1985. 588 pp.

In *Syntony and Spark: The Origins of Radio* (1976), Hugh Aitken presented the history of radio up to 1900 in a deftly-told story of Marconi and others who turned the early electromagnetic theory and experiments of Maxwell and Hertz into a practical communication technology. Aitken brings the same clarity and thoroughness to the next phase of radio history in his latest book, *The Continuous Wave*. Again he focuses on the individuals most responsible for introducing the technology that opened the way for long-distance transmission of voice and music without wires. Aitken begins with Reginald Fessenden and his high-frequency alternator, takes us through the details of Cyril Elwell's spark transmitter, and ends his superb technical story with the Audion, invented by Lee de Forest.

With this technical history as the foundation, Aitken says that "continuous wave radio opened a Pandora's box of consequences for life in the modern world." The second half of the book is devoted to detailing the consequences of a "radically new technology" that manifested itself in World War I and later in the Navy's role in the formation of RCA, which effectively blocked the Marconi Company from having a share in America's radio market. The business and political developments in radio are told in a precise narrative style as the story again centers on the key individuals involved. Aitken wields his sharp analytical skills in the presentation of a complex story which greatly improves our understanding of the formative years of this new technology.

Hugh G.J. Aitken is George D. Olds Professor of Economics and American Studies at Amherst College.

Robert W. Garnet. *The Telephone Enterprise: The Evolution of the Bell System's Horizontal Structure, 1876-1909*. Baltimore, MD: Johns Hopkins University Press, 1985. 240 pp.

George David Smith. *The Anatomy of a Business Strategy: Bell, Western Electric, and the Origins of the American Telephone Industry*. Baltimore, MD: Johns Hopkins University Press, 1985. 208 pp.

Neil Wasserman. *From Invention to Innovation: The Case of Long-Distance Telephone Transmission at the Turn of the Century*. Baltimore, MD: Johns Hopkins University Press, 1985. 176 pp.

The Johns Hopkins University Press/American Telephone and Telegraph Company series in Telephone History began this past June with the publication of these three books covering the formation and early development of one of America's largest corporations. The series is the result of extensive research conducted at AT&T's archives by independent and company historians. The series editor, Louis Galambos, is a professor of history at Johns Hopkins and a business historian. Now that the Bell System "has been broken up," writes Galambos, "and AT&T has set forth on a new corporate course, it is especially appropriate that we look back at the beginning of it all."

Robert Garnet's book, *The Telephone Enterprise*, focuses on the first thirty years of AT&T's technical, production, and marketing strategies, with an emphasis on the relationship between the mother company and subsidiary operations. The people who channeled these forces into one system receive particular attention.

The Anatomy of a Business Strategy, George David Smith's history of the Bell System's acquisition of the Western Electric Company, recounts the entrepreneurial risks and ultimate successes that the company pursued just five years after the telephone was invented. In Smith's book, the takeover of Western Electric is presented as the first in a series of daring moves by AT&T.

The technological breakthrough required for extended long-distance telephone communication – the loading coil – is the center of Neil Wasserman's book, *From Invention to Innovation*. The story of the loading coil is told from its scientific beginnings, with the work of Oliver Heaviside, George Campbell, and Michael Pupin, through its transformation into a powerful link in AT&T's comprehensive communications network.

Future volumes in the Telephone History series will cover the business, economic, political, and technological story of AT&T. Using the skills of a variety of scholars, the series promises to handle the complex story of America's telecommunications system from the perspective of several disciplines.

Robert W. Garnet is an AT&T historian. George David Smith teaches administrative and business history at New York University and heads a business consulting firm. Neil Wasserman is a research associate at Harvard Business School.

Other Recent Books

Hugh Collier. *Developing Electrical Power: Thirty Years of World Bank Experience*. Baltimore: Johns Hopkins University Press, 1984. 200 pp.

Thomas Mahon. *Charged Bodies: People, Power and Paradox in Silicon Valley*. New York: NAL Books, 1985. 339 pp.

Michael Moritz. *The Little Kingdom: The Private Story of Apple Computer*. New York: Morrow, 1984. 320 pp.

Richard Munson. *The Power Makers: The Inside Story of America's Biggest Business – and its Struggle to Control Tomorrow's Electricity*. Emmaus, PA: Rodale Press, 1985. 260 pp.

Adam Osborne and John Dvorak. *Hypergrowth: The Rise and Fall of Osborne Computer Corporation*. Berkeley, CA: Idthekekethan Publishing Co., 1984. 204 pp.

T.R. Reid. *The Chip: How Two Americans Invented the Microchip and Launched a Revolution*. New York: Simon & Schuster, 1984. 243 pp.

Dudley Saward. *Bernard Lovell: A Biography*. London: Hale, 1984. 320 pp.

Michael Shiel. *The Quiet Revolution (a History of Electrification in Ireland)*. The O'Brien Press (Ian Mills, 18 Coleswood Road, Harpenden, Hertfordshire AL5 1EQ), 1984. 304 pp.

Nicholas H. Steneck. *The Microwave Debate*. Cambridge, MA: MIT Press, 1984. 279 pp.

Harry G. Stine. *The Untold Story of the Computer Revolution: Bits, Bytes, Bauds, and Brains*. New York: Arbor House, 1984. 180 pp.

Articles

Anderson, A.F. "William Henley, Pioneer Electrical Instrument Maker and Cable Manufacturer, 1813 to 1882," *IEE Proceedings*, 132, Pt. A (1985), 249-260.

Arsenault, Raymond. "The End of the Long Hot Summer: The Air Conditioner and Southern Culture," *Journal of Southern History*, 50 (1984), 597-628.

Bardeen, John. "Beginnings of Solid State Physics and Engineering," *The Bent of Tau Beta Pi*, Spring 1985, pp. 34-37.

Beltran, Alain. "Comment électrifier Paris? Aux origines des conventions de 1889/1890," *Bulletin d'histoire de l'électricité*, 3 (June 1984), 47-51.

Bourienne, Veronique. "Le développement de l'électricité au Havre et dans le sud-ouest de la Seine inférieure de 1863 à 1930," *Bulletin d'histoire de l'électricité*, 3 (June 1984), 35-45.

Bowling, Mary B. "Another New Frontier: Archives and Manuscripts in the National Park Service," *Special Libraries*, 76 (1985), 164-176.

NEW PUBLICATIONS (cont.)

Brittain, James E. "The Magnetron and the Beginnings of the Microwave Age," *Physics Today*, 38, No. 7 (July 1985), 60-67.

Bromberg, Joan L. "Research Efforts that Led to Laser Development," *Laser Focus*, 20, No. 10 (Oct. 1984), 58-60.

Caron, Michel. "Le concept d'électrochimie depuis Alessandro Volta," *Bulletin d'histoire de l'électricité*, 3 (June 1984), 15-33.

Carvin, Henri. "L'électricité, née de la lampe à huile: Chronique marseillaise," *Bulletin d'histoire de l'électricité*, 3 (June 1984), 53-82.

Chiles, James R. "Learning from the Big [Electric Power] Blackouts," *American Heritage of Invention & Technology*, 1, No. 2 (Fall 1985), 26-33.

Cohen, I. Bernard. "Inside the Burndy Library," *American Heritage of Invention & Technology*, 1, No. 2 (Fall 1985), 42-48.

Davey, James R. "1980s Technology in the 1920s: Harry Nyquist's Proposal for Bandwidth-efficient Data Communication," *IEEE Communications Magazine*, 23, No. 4 (April 1985), 4-5.

Dennis, Paul M. "The Edison Questionnaire," *Journal of the History of the Behavioral Sciences*, 20 (1984), 23-37.

DeVorkin, David H. "Electronics in Astronomy: Early Applications of the Photoelectric Cell and Photomultiplier for Studies of Point-Source Celestial Phenomena," *IEEE Proceedings*, 73 (1985), 1205-1220.

Dummer, G.W.A. "The Story of Radar Training Devices," *Electronics & Power*, 31 (1985), 455-460.

"Festakt – Hundertjahrfeier des Österreichischen Verbandes für Elektrotechnik," *Elektrotechnik und Maschinenbau*, 102 (1985), 108-133.

Forman, Paul. "Atomichron: The Atomic Clock from Concept to Commercial Product," *IEEE Proceedings*, 73 (1985), 1181-1204.

Frost, Robert L. "La Technocratie au pouvoir . . . avec le consentement des Syndicats: La Technologie, les Syndicats et la Direction à l'Électricité de France, 1946-1968," *Mouvement social*, Jan.-April 1985.

Hecht, Jeff. "Laser: The Answer that Found Many Questions," *New Scientist*, 106 (May 16, 1985), 12-15.

Hoch, P.K. "The Rise of Physics Laboratories in the [American] Electrical Industry," *Physics in Technology*, 16 (1985), 177-183.

Hughes, Thomas P. "How Did the Heroic Inventors Do It?" *American Heritage of Invention & Technology*, 1, No. 2 (Fall 1985), 18-25.

Jones, Geoffrey. "The Gramophone Company: An Anglo-American Multinational, 1898-1931," *Business History Review*, 59 (1985), 76-100.

Leslie, Stuart and Bruce Hevly. "Steeple Building at Stanford: Electrical Engineering, Physics, and Microwave Research," *IEEE Proceedings*, 73 (1985), 1169-1180.

Lewis, Thomas S.W. "[Edwin Armstrong:] Radio Revolutionary," *American Heritage of Invention & Technology*, 1, No. 2 (Fall 1985), 34-41.

McMaster, Robert C. "The Origins of Electromagnetic Testing," *Materials Evaluation*, 43 (1985), 946-956.

Martersteck, K.E. & A.E. Spencer, Jr. "The 5ESS [Telephone] Switching System," *AT&T Technical Journal*, 64 (1985), 1305-1314.

Middlecote, A.A. "History of Standardisation," *Elektron*, 2, No. 2 (Feb. 1985), 15-21.

Milligan, Margaret. "Data Processing Digest: Thirty Years Before the Masthead," *Annals of the History of Computing*, 7 (1985), 245-250.

Morsel, H. "Évaluation de la formation du capital fixe dans l'hydroélectricité avant les nationalisations en France," *Bulletin d'histoire de l'électricité*, 3 (June 1984), 5-13.

Moynihan, J.F. "Early Automatic Telephony in Australia," in *Second National Conference on Engineering Heritage, Melbourne, 1985* (Barton, ACT: The Institution of Engineers, Australia, 1985), pp. 100-106.

Ryder, John D. "An IEEE Centennial Retrospective," *IEEE Transactions on Professional Communication*, PC-28, No. 2 (June 1985), 2-6.

Schaffer, Daniel. "Environment and TVA: Toward a Regional Plan for the Tennessee Valley, 1930s," *Tennessee Historical Quarterly*, 43 (1984), 333-354.

Smith, J.M. "Blue Joker: An Exotic Radar of the 1950s," *Electronics & Power*, 31 (1985), 461-462.

Smith, Robert W. & Joseph N. Tatarewicz. "Replacing a Technology: The Large Space Telescope and CCDs," *IEEE Proceedings*, 73 (1985), 1221-1235.

Süsskind, Charles. "Who Invented Radar?" *Endeavour*, n.s., 9, No. 2 (1985), 92-96.

Tomayko, James E. "Helmut Hoelzer's Fully Electronic Analog Computer," *Annals*

of the History of Computing, 7 (1985), 227-240.

Valley, George E., Jr. "How the SAGE Development Began," *Annals of the History of Computing*, 7 (1985), 196-226.

Young, Robert A., Jr. "The Mount Tom Electric Railway," *Historical Journal of Massachusetts*, 13 (1985), 42-52.

Special Issues

Hong Kong Section, *IEEE Centennial Special Issue*, 1984 (118 pp), includes a brief history of the Hong Kong IEEE Section, abstracts of Centennial lectures given on various aspects of the history of electronics, electric power, and electrical communications in Hong Kong, and full-length papers on the development of the China Light & Power Company and the Hong Kong Electric Co., Ltd. The abstracts are in Chinese and English; the rest of the issue is translated into English.

Supplement to the Record of the IEEE 1985 International Radar Conference. Contains four papers on the history of radar in World War II, covering the topics of ECCM, coherent pulse search radar for moving target detection, the "Moonshine" system, and anti-jamming techniques at the German AAA radars.

IEEE Proceedings, vol. 73, July 1985. A special section, edited by Robert Friedel, contains four articles on the history of electronic instrumentation for the sciences. All four are listed separately under Articles.

Unpublished Manuscripts

Williams, Bernard O. "Computing with Electricity, 1935-1947," Ph.D. dissertation, University of Kansas, 1984.

The following papers were read during meetings held from January to November 1984 celebrating the 75th anniversary of the South African Institute of Electrical Engineers:

Rosen, P.R. "From Merz-Price to Micro-Processor"

Van Wyk, J.D.N. "An Historical Review of Some Milestones in the Early Development of Computers"

Walker, G.D. "Radio Reminiscences of an Electrical Engineer"

Texas Instruments Archives: A Corporate Resource

Sally L. Simon and Nancy M. Merz

Texas Instruments Incorporated, a leader in the field of electronics, is responsible for many of the industry's firsts. The company's accomplishments included the first mass production of germanium radio transistors; the introduction of the first commercial silicon transistor, which led to extensive space and military applications; the invention of the integrated circuit, which provided the foundation for most modern developments in electronics; and the invention of the handheld calculator.

The company that became Texas Instruments traces its origin to 1930, to a geophysical services company whose founders first conceived of seismic reflections as a means of prospecting for oil. During World War II, diversification into electronics systems manufacturing began, using technologies developed in the search for oil. Eventually, it became a case of the tail wagging the dog, with electronics design, manufacturing, and marketing dominating the geophysical services aspect of the business. A corporate reorganization was accomplished in 1951, giving the company its present name, and positioning the geophysical service operation as a major subsidiary. Shortly thereafter, TI obtained public ownership and went on to grow into a diversified, multinational, technology-based company with operations all over the world.

Texas Instruments recently established a corporate archives, a central location in which to house and preserve documentation of its technical and business history. The archives is an outgrowth of a history project initiated by the late Patrick E. Haggerty, former president, chief executive officer, and chairman of the board of TI, who, with TI founder J. Erik Jonsson, was responsible for guiding the company from a geophysical survey firm to its status as a major multinational corporation. Haggerty planned to write the company's history, but died in 1980 before the task was accomplished.

Following his death, Texas Instruments contracted with History Associates Incorporated, a Maryland-based historical and archival consulting firm, to write the history. The archives project was discussed concurrently with the latter stages of this history project and, in November 1984, TI contracted with History Associates to establish the archives at TI's Dallas, Texas, headquarters. The archives staff, which consists of two History Associates and two Texas Instruments employees, is collecting,

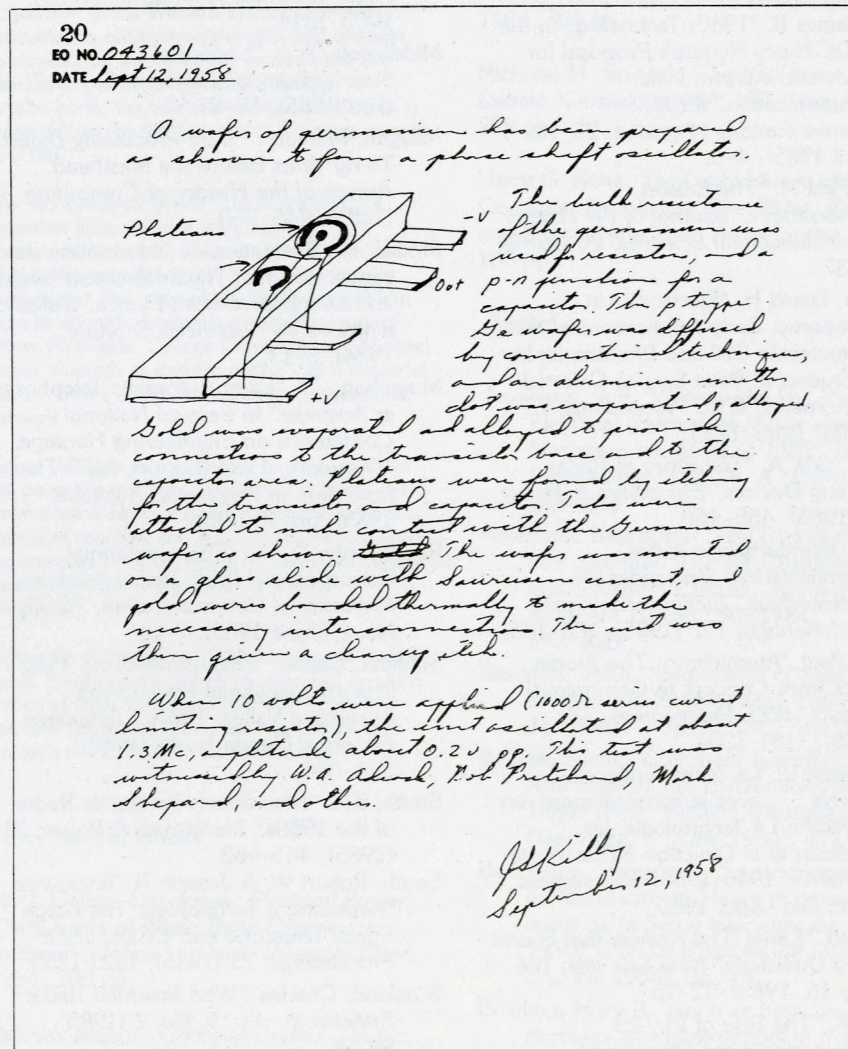
organizing, and preserving those materials that reflect and document TI's origins; the evolution of its corporate policies, procedures, products, and culture; and the contributions of its executives, leading engineers, and other key personnel.

The archivists are systematically acquiring TI's archival records, which comprise about 1% to 2% of the total records generated by the company. Archival materials are those no longer needed for daily operations, but which have a continuing historical, legal, scientific, evidential, or financial value. Records selected are the best or only source of information on a particular topic. The types of records sought for the archives include papers of company founders; correspondence and memoranda; laboratory/engineering notebooks; informal research notes;

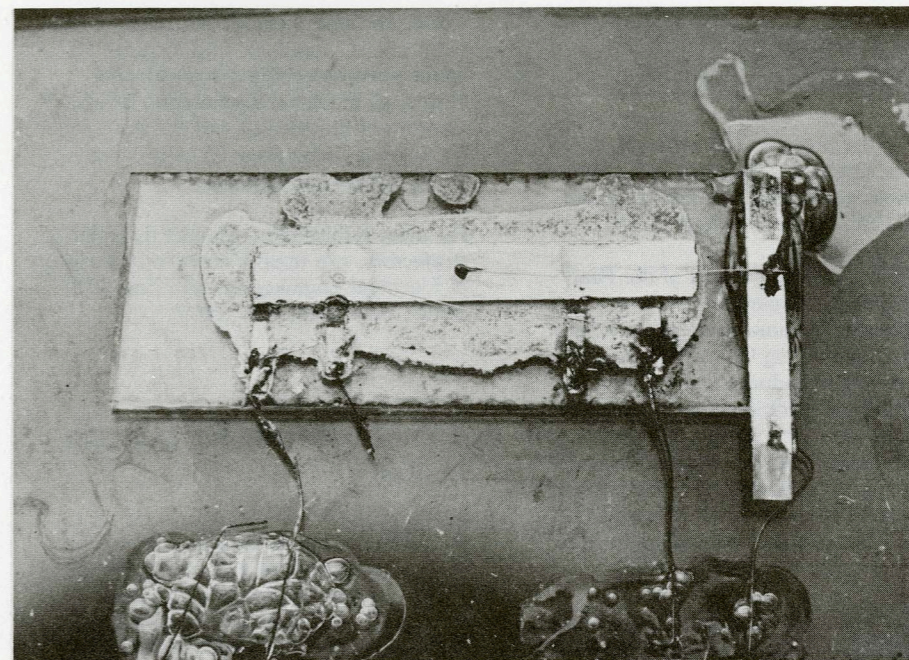
minutes of board of directors meetings; articles of incorporation; the papers of past presidents and board members; corporate publications; photographs; and audio-visual materials.

The archives staff has acquired a large collection of historical documents, including the papers of Patrick E. Haggerty. The archives also contains merger and acquisition records; oral histories; early research reports; speeches and addresses of executives; photographs; and a complete set of annual reports.

Presently, staff members are conducting departmental surveys to locate and identify archival records, which are then transferred to the custody of the archives. Finding aids detailing record types, informational content, and lists of folder titles are created



A page from Jack Kilby's notebook describing an integrated circuit



The original integrated circuit built by Jack S. Kilby of Texas Instruments

to provide intellectual control and access to the materials. The staff is also surveying records to insure that those with archival value are retained.

TI's archives serves as an informational resource for corporate personnel. It is not open to the public, but exists solely for internal use. Archivists provide research material for and answer inquiries from TI executives, attorneys, marketing, advertising, and public relations personnel, writers, and other staff. Many of the records are accessible only to authorized personnel.

As more records are added to the holdings, the archives will become increasingly valuable by preserving the corporate

memory. With tangible evidence of historical events centrally housed, information can be found more efficiently and personnel will not have to rely on word of mouth and the memory of others to discover when and why an event occurred. They will have a place to go to verify information which helps them learn from the past, understand the present, and plan for the future.

Nancy M. Merz and Sally L. Simon are History Associates Incorporated's on-site personnel in the Texas Instruments Archives. For further information, contact Norman Neureiter, Texas Instruments, P.O. Box 225474, MS 227, Dallas, TX 75265 (214-995-5550).

The Newsletter of the IEEE Center for the History of Electrical Engineering is sent three times a year free of charge to engineers, historians, and others with an interest in the history of electrical science and technology. If you wish to be certain of receiving later issues, please take the time to fill out the form below and stamp and mail it to the Center (if you have not yet done so).

Name _____

Address _____

Zip/Postal Code _____

IEEE Membership No. (if applicable) _____

EXHIBITIONS AND MUSEUMS

Con Edison Energy Museum

The Con Edison Energy Museum traces the growth of the electrical age from the start-up of Edison's Pearl Street station in

1882 to the present. The series of exhibits, artifacts, interactive displays, and recorded narratives gives historical highlights and insights into the world of electricity.

A working, cutaway model of the Pearl Street Station, displayed next to a 100-kilowatt dynamo used at the Edison Electric Illuminating Co. of Brooklyn from 1889-1902, introduces the visitor to the technology of electric power generation of a century ago. The spread of electric power is then traced, from underground distribution to applications of electricity and electrical appliances in industry and the home. Discussions of current and future energy sources complete the tour.

The Con Ed Energy Museum is located at 145 East 14th Street, New York, NY 10003 (212-460-6244). It is open from 10am to 4pm, Tuesday through Saturday.

Artifactory

Artifactory is the newsletter of the Technology Museums Special Interest Group of the Society for the History of Technology. Published three times a year, *Artifactory* focuses on science and technology exhibits in museums around the

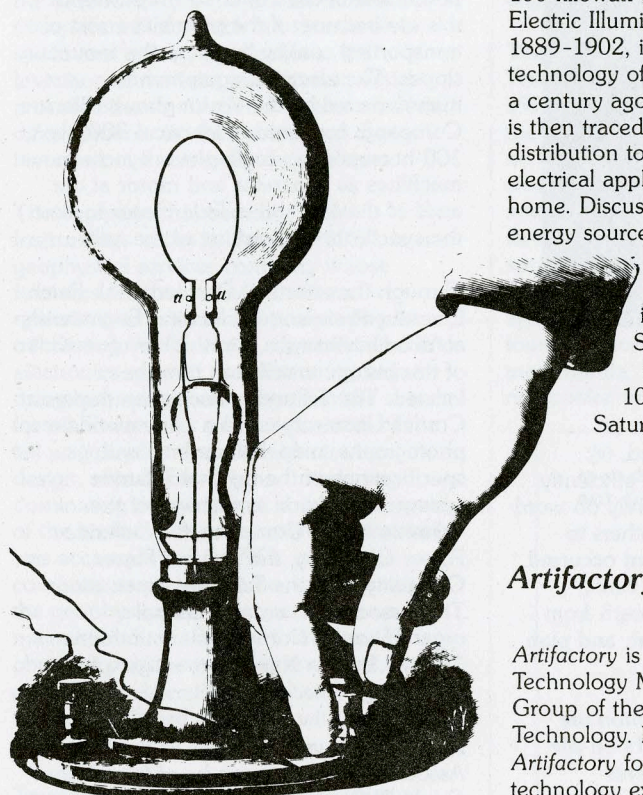
world, and also includes information on publications, meetings, and lectures. Recent issues have noted the Center for the History of Electrical Engineering exhibit, "A Century of Electricals," and the Association for Science-Technology Centers' traveling show, "Chips and Changes."

For more information, contact the Editor, *Artifactory*, c/o IEEE Center for the History of Electrical Engineering, 345 East 47th Street, New York, NY 10017.

New Museum for Silicon Valley

In 1978, the Junior League of Palo Alto, California, proposed a comprehensive facility devoted to the history, ethics, economy, and social effects of the high technology produced by "Silicon Valley." That project took a major step towards becoming a reality a few months ago when San Jose was chosen as the site for the \$90 million, 250,000-square-foot Technology Center. The firm of Legorreta Arquitectos has been selected to design the museum, and construction at the eight-acre river-park site is tentatively scheduled to begin in late 1986. The projected opening date is Fall 1988.

Eustace Mendis, formerly Chief Scientist at the Toronto Science Center in Ontario, has been named Executive Director of the Technology Center. For further information, contact the Technology Center of Silicon Valley, 2880 Zanker Road, Suite 103, San Jose, CA 95134 (408-434-1850).



"Edison's Latest Electric Lamp," from the 10 January 1880 issue of *Scientific American*

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