

## “Edison after the Electric Light” Debuts

“Edison after the Electric Light: The Challenge of Success” is a new traveling exhibit that looks at Thomas Edison’s later years. In 1887, at the age of forty, Edison moved into a grand new laboratory in West Orange, New Jersey—“a place in which you could invent anything that came into your head.” Here he intended to concentrate his energies, as he had with such extraordinary success a decade earlier at nearby Menlo Park. In the considerably smaller Menlo Park laboratory, over a four-year period, he had earned the title “Wizard” for his success in inventing hundreds of devices, including the phonograph, a carbon-resistance telephone transmitter, an improved dynamo, and a practical incandescent lamp. He now planned to do much more.

But he also had a new wife, a new home, and a new winter retreat in Florida. He was famous, and he was older. All of these factors would generate competition for his time. Furthermore, the sheer size of West Orange would make him more of a manager. His special gift to Menlo Park had been a combination of inventive genius, dogged determination, and a special ability to get along with other men—to work with them, to relax with them, and thus to inspire them. It would be increasingly difficult for him to do this at the new facility.

Over the years, Edison did spend substantial periods of creative time in the West Orange laboratory. But the new elements in his life had their impact, and he did not achieve the productivity he had anticipated. Instead—perhaps to his surprise—he discovered that he could adjust his goals to include the new activities, and that they were themselves a source of enjoyment. And the periods he could spend in the laboratory became all the more precious.

“Edison after the Electric Light” tells this story through the photographic record left by Edison. Photography was maturing as Edison was becoming a world figure, and Edison understood the power of the press. Thousands of photographs were taken of him and his activities. The images included in this exhibit were chosen from a collection recently donated to the Smithsonian Institution by ETL Testing Laboratories, Inc., and from the collection



Edison National Historic Site

Edison and his son, Charles, “experimenting,” ca. 1900. From “Edison after the Electric Light.”

at the Edison National Historic Site, West Orange, New Jersey.

Made possible by a grant from ETL, “Edison after the Electric Light” was developed by curators Bernard S. Finn, National Museum of American History, Smithsonian Institution, and Joyce E. Bedi, IEEE Center for the History of Electrical Engineering. After a preview at ETL’s 90th anniversary celebration at the Waldorf-Astoria Hotel in New York City, the exhibit began its two-year tour of museums across the United States. It can be seen at

Discovery World in Milwaukee, Wisconsin, from 7 March - 19 April 1987 and then at the National Atomic Museum, Albuquerque, New Mexico, from 9 May - 21 June. “Edison after the Electric Light: The Challenge of Success” is being circulated by the Association of Science-Technology Centers; inquiries should be directed to Wendy Pollock, Traveling Exhibition Service, Association of Science-Technology Centers, 1413 K Street, NW, Tenth Floor, Washington, DC 20005 (202-371-1171).

## Friends!

The Friends of the IEEE Center for the History of Electrical Engineering is off to a good start in its second year. Nearly 200 of you have become Friends already, and we sincerely thank you for your support. Also, the IEEE Foundation has appointed the Friends of the IEEE Center for the History of Electrical Engineering Committee to administer the Friends Fund, which supports special Center projects. The officers for 1986-87 are John D. Ryder, Chairman; Emerson Pugh, Vice Chairman; Harold Chestnut, Financial Officer; and Erwin Tomash, Secretary.

As of 1 February, the roster of Friends for 1987 is as follows:

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We hope that we will be able to welcome many more of you as Friends of the IEEE Center for the History of Electrical Engineering in 1987.

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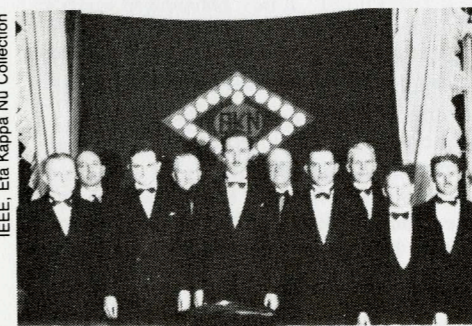
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## Eta Kappa Nu Archives

Eta Kappa Nu, the honorary electrical engineering society, marked the 50th anniversary of its Outstanding Young Electrical Engineer Award last year with the publication of a book on the history of the award. The book's editor was Donald Christiansen, editor of IEEE Spectrum and former chairman of the society's Award Organization Committee, who recently transferred his files on the award and other Eta Kappa Nu activities to the IEEE archives. The files, some of which came from James A. D'Arcy, Chairman of the 50th Anniversary Committee, Larry Dwon and Berthold Sheffield, members and former chairmen of the Award Committee, and Paul K. Hudson, executive secretary of Eta Kappa Nu, cover in detail part of the organization's recent history.

Founded on the campus of the University of Illinois in 1904 by Maurice L. Carr, an electrical engineering student, Eta Kappa Nu was originally intended to be a secret society or a professional union for all electrical engineering graduates. Carr and nine charter members promptly dropped these ideas, though, and established the society as a national fraternity with chapters on college campuses. Membership was open to electrical engineering students, based on scholarship, character, and personality. The founding group decided on the Wheatstone bridge as its symbol (balancing scholarship, character, and personality — the three "known" legs of the bridge — led to "success").

In 1906, Eta Kappa Nu began publishing *Electrical Field*, which was mostly concerned with helping its readers find employment. *The Bridge*, the present, more broadly-based Eta Kappa Nu magazine, succeeded *Electrical Field* in 1913. In 1947, the society formally adopted the scholarship requirements for membership (upper fourth of junior electrical engineering class or upper third of senior electrical engineering class) that remain in effect today.



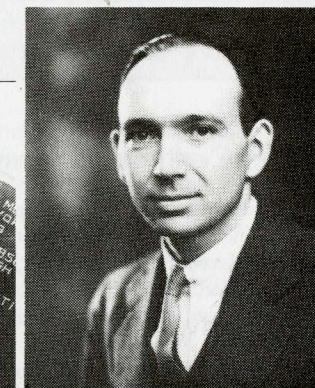
Winston E. Kock (center) won the 1938 award for "his noteworthy applications of vacuum tubes to the production of musical instruments and his exceptional leadership in the artistic life of the community."



The first recipient of the Outstanding Young Electrical Engineer award was Frank M. Starr, in 1936, who was chosen for "his exceptional contributions to the design, operation and comparative economics of electrical power distribution, and his wide interest in philosophy and art." His name, like the names of all the winners since 1936, was inscribed on this commemorative brass bowl.

Eta Kappa Nu established the Outstanding Young Electrical Engineer Award in 1936 at the suggestion of Roger I. Wilkinson, a member of Bell Laboratories and later an IEEE Fellow. Those eligible must have been "graduated not more than ten years from a specified baccalaureate program" and be under 35. He or she is evaluated on the basis of career achievement, service to community, cultural or aesthetic development, and other professional accomplishments.

Some prominent past winners have been C. Guy Suits (1937), who went on to become director of the General Electric Research Laboratory; Cleo Brunetti (1941), an expert in circuit theory; John Pierce (1942), radar and telecommunications pioneer; and Kenneth H. Olsen (1960), the founder of Digital Equipment Corporation. Among those who have received honorable mention are Philo T. Farnsworth (1937), the television pioneer; Donald G. Fink (1940), now Executive Director Emeritus of the IEEE; Jerome Wiesner (1947), who later became president of MIT; and Jay W. Forrester (1948), an inventor of the magnetic-core computer memory. The name of each year's Outstanding Young Electrical Engineer is inscribed on a large



brass bowl, which is under the curatorship of the IEEE Center for the History of Electrical Engineering.

The material transferred to the IEEE archives focuses on the granting of this award. Included are correspondence, programs, and other material relating to the award banquets and citations in the 1960s and mid-1980s; manuscripts and photographs for the 50th anniversary celebration of the award; material on the selection of the Outstanding Young Electrical Engineer in the 1960s and early 1970s; and files regarding the general business of the Award Organization Committee.

For more information on the award and Eta Kappa Nu, see Larry Dwon, *History of Eta Kappa Nu* (Urbana, IL: Eta Kappa Nu, 1976); John F. Mason, "The Secret Society that Never Was," IEEE Spectrum, 16, No. 9 (Sept. 1979), 55-57; Larry Dwon, "Roger I. Wilkinson Outstanding Young Electrical Engineer Award: 50 Year Review," The Bridge, 83, No. 1 (Nov. 1986), 2-19; and Donald Christiansen (ed.), *A History of the Eta Kappa Nu Outstanding Young Electrical Engineer Award* (Urbana, IL: Eta Kappa Nu, 1986).

**BRIEFS**

**Edison Centennial Symposia**

On Thanksgiving Day 1887, Thomas Alva Edison officially opened his new laboratory and manufacturing complex at West Orange, New Jersey. Here he continued, on a much larger scale, the work begun at nearby Menlo Park and started several new ventures. The most successful products developed at the West Orange lab, now part of the Edison National Historic Site, included an improved phonograph, the alkaline storage battery, and motion pictures. Two symposia are among the many events scheduled to mark the centennial of the laboratory.

The first of these, entitled "The Wizard of Menlo Park: Thomas Alva Edison Invents a New Century," will be held at the Eagleton Institute, Woodlawn Building, Douglas Campus, Rutgers, The State University of New Jersey, on four successive Sundays, beginning 1 March. The speakers will be

**1 March.** John T. Cunningham and Wyn Wachhorst, "Edison: The Symbol and the Myth"

**8 March.** Bernard S. Finn and Paul Israel, "Networks of [Telegraph] Communication"

**15 March.** Louise Duus and Edward Pershey, "Visions and Reflections of American Society [through the Phonograph and Motion Pictures]"

**22 March.** Robert Friedel and Leonard Reich, "The Invention of Invention."

The program is sponsored by the Middlesex County Cultural and Heritage Commission, the New Jersey Committee for the Humanities, and the Middlesex County Board of Chosen Freeholders, in cooperation with Edison's West Orange Laboratory Centennial Committee.

The second symposium will be held at the Edison National Historic Site on Saturday, 25 April 1987, beginning at 9 a.m. The speakers will be W. Bernard Carlson, Andre Millard, and Mary Ann Hellrigel. Their papers, based on recent research in the extensive Edison archives, will focus on the technical and managerial aspects of Edison's industrial research at West Orange. The moderator will be Darwin Stapleton. Since seating is limited, those interested in attending should contact the Edison National Historic Site, Main Street at Lakeside, West Orange, NJ 07052 (201-736-0550).

For details on either symposium, contact Edward Pershey at the above address.



One of the earliest uses for subminiature vacuum tubes was in handie-talkies in World War II.

**MIT Museum Documents Subminiature Vacuum Tube**

The MIT Museum has recently produced, with funding from the Raytheon Company, a fifteen-minute videotape entitled *The Subminiature Vacuum Tube: The Cycle of Technology*. The subminiature tube was a major breakthrough in electronics technology which affected many developments in 20th-century science and industry. Among other applications, it was used in hearing aids and in the development of the proximity fuse, one of the most important military inventions of World War II.

The videotape, which is meant for a general audience, uses the development of the subminiature tube to demonstrate the process of technological innovation in electronics. It traces the development of radio and of vacuum tubes from the

**History of Communications Interest Group**

A promising meeting was held at the 1986 meeting of the Society for the History of Technology (SHOT) on forming a special interest group on the history of communication technologies. About thirty-five people attended, whose interests "ranged from the technical development of communication apparatus, to the effects of changes in information flow, the history of communication industries, the political, economic and social influences on the development of communication technologies, the history of the acceptance of new

discovery of electromagnetic waves in the mid-19th century, and emphasizes the way that unexpected applications are found for existing technologies. The videotape is available free of charge to nonprofit educational organizations.

Production of the subminiature vacuum tube ceased in February 1986 at Raytheon in Massachusetts. As part of the video project, the MIT Museum filmed the entire tube manufacturing process before this last major assembly line for the tubes closed down. The approximately 25 hours of film are now in the collection of the MIT Museum. Those interested in this archival footage or who wish to obtain a copy of *The Subminiature Vacuum Tube: The Cycle of Technology* should contact Warren A. Seamans, Director, MIT Museum, 265 Massachusetts Avenue, Cambridge, MA 02139 (617-253-4444).

media, regulation of the media, the role of communication technologies in the spread of other technologies, and the political, economic and social impact of communication media."

The group, which now has a 100-person mailing list, invites interested persons to join and to also suggest a name for the group. A call for papers for a session devoted to communication history at the next SHOT meeting will be issued shortly. For more information, contact Lori Breslow or Pamela Lurito, College of Communication, Boston University, 640 Commonwealth Avenue, Boston, MA 02215.

**NEW PUBLICATIONS**

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

**Books**

James R. Beniger. *The Control Revolution: Technological and Economic Origins of the Information Society*. Cambridge, MA: Harvard University Press, 1986. 493 pp.

In his book, Beniger asks, "why do we find ourselves living in an information society? How did the collection, processing, and communication of information come to play an increasingly important role in advanced industrial countries relative to the roles of matter and energy? And why is this change recent - or is it?" Information-processing communication and control technology are the focus of Beniger's book.

For Beniger, the "control revolution" began in the 1830s with the introduction of photography and telegraphy, and continues through the present computer age. He cites the demand for new technologies, made by our perpetually changing society, as well as by societies of the past, as the key ingredient in the revolution. In tracing the history of technological advancement, Beniger discusses the history of many electrical and electronics technologies, such as rotary power printing, telegraphy, telephony, motion pictures, magnetic tape recording, radio, television, and electronic computers.

James R. Beniger is Associate Professor at the Annenberg School of Communications, University of Southern California, Los Angeles.

Harlow Freitag. *Electrical Engineering: The Second Century Begins*. New York: IEEE Press, 1986. 180 pp.

*Electrical Engineering: The Second Century Begins* was prepared as a record of the Centennial activities of the IEEE during 1984. The book is divided into three parts. Part I, "The First Century," consists of the reprinted booklet, *A Century of Electricals*, published in 1984 as the catalogue of the IEEE Centennial exhibit prepared by the Center for the History of Electrical Engineering. Part II, "The IEEE Centennial," describes the extensive planning that preceded the celebration of the Centennial and the many activities of the Centennial year. Part III, "The Second Century Begins," contains a selection of twenty-one papers given at the 1984 Centennial Technical Convocation in Philadelphia by prominent engineers and authors, including Koji Kobayashi, Robert Noyce, Bernard Oliver, Alvin Toffler, and Charles Townes. Finally, the book contains two appendixes: a listing of the IEEE Centennial Medal winners; and a bibliography, compiled by the Center for the History of Electrical Engineering, of books and about 300 articles on electrical history and the Centennial, published by the IEEE in 1984.

Harlow Freitag is the Deputy Director of the Supercomputing Research Center, Lanham, MD.

Margaret B.W. Graham. *RCA and the VideoDisc: The Business of Research*. New York: Cambridge University Press, 1986. 256 pp.

Margaret Graham's book examines technical innovation as a management problem within the complex workings of a large corporate R&D organization. Graham explores this theme with a case study of RCA's fifteen-year research and development effort to produce a commercial VideoDisc. The VideoDisc's transitions from laboratory to development group to market and finally to withdrawal from the marketplace are all discussed. Graham then explains how the company's history, structure, technical capability, and competition affected the development of the VideoDisc. This book is not only the story of the RCA VideoDisc, but an inside look at how a modern company conducts the complex process of science-based innovation.

Margaret B.W. Graham is an Associate Professor at the Boston University School of Management, and a Director of the Winthrop Group, Inc.

A. Heerding. *The History of N.V. Philips' Gloeilampenfabrieken. Volume I: The Origin of the Dutch Incandescent Lamp Industry*. Translated by Derek S. Jordan. Cambridge, UK/London/New York: Cambridge University Press, 1986. 343 pp.

This volume, originally published in Dutch in 1980, is the first of a projected three volume set. It analyzes the Dutch electrical industry prior to the founding of the Philips Company in 1891. The book explores the origins of the Philips Company from a scientific, as well as an industrial perspective. Dr. Heerding explains how the later success of the Company was dependent upon its fortunate "combination of technical, commercial, and financial expertise." This volume also describes the Philips family's early commodity funding, banking, and gas-lighting enterprises, which later led to its technological and marketing success in the manufacturing sector.

A. Heerding is with the Philips Company, Eindhoven, The Netherlands.

**Other Recent Books**

Ian Adamson and Richard Kennedy. *Sinclair and the "Sunrise" Technology*. New York: Penguin Books, 1986. 263 pp.

Andy Affrunti, Sr. *A Personal Journal: 50 Years at Motorola*. Self-published, 1985. 161 pp.

Kenneth Bilby. *The General: David Sarnoff and the Rise of the Communications Industry*. New York: Harper & Row, 1986. 326 pp.

John Hendry. *James Clerk Maxwell and the Theory of the Electromagnetic Field*. Bristol, UK: Adam Hilger, 1986. 328 pp.

Sonny Kleinfeld. *A Machine Called Indomitable (A History of the Nuclear Magnetic Resonance Scanner)*. New York: Times Books, 1986. 256 pp.

David Schap. *Municipal Ownership in the Electric Utility Industry: A Centennial View*. New York: Praeger, 1986. 128 pp.

G.L. Vershuur. *The Invisible Universe Revealed - The Story of Radio Astronomy*. New York: Springer, 1986. 380 pp.

**Articles**

Abe, Hideo. "The Development of Electric Technology and the Role of Our Institute," *Denki Gakkai Zasshi* (Journal of the Institute of Electrical Engineers of Japan), 106, No. 7 (July 1986), 625-630.

Addie, R.W. "Connectors Since the 20's," *Journal of the Institution of Electronic and Radio Engineers*, 56 (Oct./Dec. 1986), 317-324.

Aloisi, P. "L'evolution des transistors de puissance," *Bulletin des Schweizerischen Elektrotechnischen de l'Association Suisse des Electriciens*, 77 (1986), 1212-1217.

Anonymous. "What Our Organization Can Learn from the Historians (at the Hagley R&D Pioneers' Conference)," *Research Management*, 19, No. 6 (1986), 6-8.

Asztalos, P. "Centenary of the Transformer," *Polytechneci: Electrical Engineering*, 30, No. 1 (1986), 9-16.

Beauchair, Wilfried de. "Alwin Walther, IPM, (Institut für Praktische Mathematik) and the Development of Calculator/Computer Technology in Germany, 1930-1945," *Annals of the History of Computing*, 8 (1986), 334-350.

Berry, Jean R. "Clifford Edward Berry, 1918-1963: His Role in Early Computers," *Annals of the History of Computing*, 8 (1986), 361-369.

Birenbaum, Rhonda. "Nikola Tesla and Broadcast Power: A True Story," *Canadian Research*, 19, No. 7 (Sept. 1986), 82, 84, 86.

Brittain, James E. "The Magnetron and the Black Box: Some Reflections on the Early History of Microwave Systems," *Proceedings of the Radio Club of America*, 60, No. 3 (Nov. 1986), 6-13.

Bromberg, Joan L. "Engineering Knowledge in the Laser Field," *Technology and Culture*, 27 (1986), 798-818.

Carlson, W. Bernard. "A Century of Electricals: A Poster Exhibit Celebrating the IEEE's Centennial," *Technology and Culture*, 27 (1986), 828-831.

**NEW PUBLICATIONS (cont.)**

Dore, C.E. "Fifty Years of Recorded Information Services," *British Telecommunications Engineering*, 5 (1986), 192-196.

Erskine, Ralph. "From the Archives: GC and CS Mobilizes 'Men of the Professor Type,'" *Cryptologia*, 10, No. 1 (Jan. 1986), 50-59.

Fox, Barry. "What Television Did in the (Second World) War," *New Scientist*, 112 (30 Oct. 1986), 35-38.

Franz, Kurt. "Erinnerungen an Jahrzehnte Funktechnik," *Elektrotechnik und Maschinenbau*, 103 (1986), 429-437.

GEC Turbine Generators Ltd. "A Century of Power Generation," *GEC Review*, 2, No. 2 (1986), 67-82.

Glaser, J.I. "Fifty Years of Bistatic and Multistatic Radar," *IEE Proceedings*, 133, Pt. F, No. 7 (Dec. 1986), 596-603.

Goheen, Peter G. "Communications and Urban Systems in Mid-Nineteenth Century Canada," *Urban History Review*, 14 (Feb. 1986), 235-245.

Good, Gregory. "Between Two Empires: The Toronto Magnetic Observatory and American Science before Confederation," *Scientia Canadensis*, 10, No. 1 (1986), 34-52.

Grabner, Judith V. "Computers and the Nature of Man: A Historian's Perspective on Controversies about Artificial Intelligence," *Bulletin of the American Mathematical Society*, n.s. 15, No. 2 (Oct. 1986), 113-126.

Grant, H. Roger. "Interurban!" *Timeline*, 3 (Apr./May 1986), 15-33.

Harashima, Hiroshi. "A History of Coding Theory," *Journal of the Society of Instrument and Control Engineers*, 25, No. 6 (June 1986), 498-502.

Hausen, Jurgen. "Das transatlantische Telegrafiekabel - Teil 2," *Nachrichtentechnische Zeitschrift*, 39 (1986), 636-638, 640, 642-643.

Hogan, Thom. "Apple: The First Ten Years," *A+ Magazine*, 5, No. 1 (Jan. 1987), 43, 44, 46.

Hoppe, Brigitte. "The 'Mysterious Transformation' of Electricity by Plants During the Early History of Electrophysiology," *The Bakken, a Library and Museum of Electricity in Life, Electric Quarterly*, 8, No. 4, (1986), 3.

Hunt, Bruce J. "Experimenting on the Ether: Oliver J. Lodge and the Great Whirling Machine," *Historical Studies in the Physical Sciences*, 16, No. 1 (1986), 111-134.

Kashin, Seymour and Reginald C. Welch. "How the Promising PCC Car Was Prematurely Derailed," *IEEE Spectrum*, 23, No. 12 (Dec. 1986), 48-51.

Kazda, Louis F. "The Way It Was (in Control Systems)," *IEEE Control Systems Magazine*, 6, No. 6 (Dec. 1986), 15-16.

Kloss, A. "Geschichte der europäischen Leistungselektronik," *Bulletin des Schweizerischen Elektrotechnischen de l'Association Suisse des Electriciens*, 77, No. 19 (1986), 1243-1249.

Kowalski, Ludwik. "A Short History of the SI Units in Electricity," *Physics Teacher*, 24 (Feb. 1986), 97-99.

Leber, Rolf. "15 Jahre DKE (Deutschen Elektrotechnischen Kommission)," *Elektrotechnische Zeitschrift*, 107 (1986), 782-787.

Leggat, D.P. "Broadcasting Technology: The Major Landmarks," *Journal of the Institution of Electronic and Radio Engineers*, 56 (Oct./Dec. 1986), 305-310.

Mothersole, Peter L. "Developments in Broadcasting Technology and their Effect on TV Receiver Design," *Electronics and Power*, 32, No. 11 (Nov./Dec. 1986), 791-795.

Powell, C. "Radio Navigation in the 1920s," *Journal of the Institution of Electronic and Radio Engineers*, 56 (1986), 293-297.

Press, Larry. "The ACM Conference on the History of Personal (Computer) Workstations," *Abacus*, 4, No. 1 (Fall 1986), 65-70.

Raleigh, Lisa. "Woz on the Last 10 Years (of Apple)," *A+ Magazine*, 5, No. 1 (Jan. 1987), 38-41.

Schroeder, Fred E.H. "More 'Small Things Forgotten': Domestic Electrical Plugs and Receptacles, 1881-1931," *Technology & Culture*, 27 (July 1986), 525-543.

Sheppard, Harry R. "A Century of Progress in Electrical Insulation, 1886-1986," *IEEE Electrical Insulation*, 2, No. 5 (Sept. 1986), 20-30.

Shmanske, Stephen. "News as Public Good: Cooperative Ownership, Price Commitments, and the Success of the Associated Press," *Business History Review*, 60 (Spring 1986), 55-80.

Sinclair, Bruce. "Regenerating the Future: The First World Power Conference, London, 1924," *Scientia Canadensis*, 9, No. 2 (Dec. 1985), 165-172.

Stamps, Richard B. and Nancy Wright. "Thomas Edison's Boyhood Years: A Puzzle," *Michigan History*, 70 (May/June 1986), 36-43.

Thrower, K.R. "Evolution of Circuit Design for AM Broadcast Receivers: 1900-1935," *Journal of the Institution of Electronic*

*and Radio Engineers*, 56 (Oct./Dec. 1986), 325-341.

Tomeski, Edward Alex and Michael Klahr. "How Artificial Intelligence Has Developed," *Journal of Systems Management*, 6 (May 1986), 6-10.

Wilkinson, R.H. "Early History of the High-Fidelity Finite-Impulse-Response Filter," *IEE Proceedings*, 133, Pt. G, No. 5 (Oct. 1986), 243-250.

**Special Issues**

**IEE Proceedings**

*Vol. 133, Part J, No. 3 (June 1986)*. A special issue on the first twenty years of optical communications. Includes papers on the development of fiber optics at the British Post Office and the U.S. Navy, as well as the history of dielectric-fiber surface waveguides and sources and detectors for fiber optics.

**Naval Research Reviews**

*Vol. 38, No. 3 (1986)*. A special issue commemorating the fortieth anniversary of the Office of Naval Research. Included are three articles: "Office of Naval Research; Windows to the Origins," "Forty Years on the Forefront of Science," and an interview with RADM J.B. Mooney, Jr., USN, Chief of Naval Research.

**Philips Technical Review**

*Vol. 42 (Sept. 1986)*. A 50th anniversary issue containing articles on the history of television technology, welding lead-through wires, microelectronics, miniaturization of capacitors, electric motors for small domestic appliances, fluorescent lamps, medical systems, and telephone switching systems.

**Technology and Culture**

*Vol. 27, No. 4 (Oct. 1986)*. A special issue on "Engineering in the Twentieth Century," edited by Robert Friedel, former Director of the Center for the History of Electrical Engineering. Included are reviews of several books relating to electrical engineering history, a review of the Center's exhibit, "A Century of Electricals," and an article on laser history.

**The Tesla Journal**

*Nos. 4 and 5 (1986/1987)*. This double issue contains nearly 50 historical articles and abstracts and reprinted articles related to Tesla. Of special interest are "Nikola Tesla: Electrical Genius - His Work In Colorado," by Charles Wright, "George Westinghouse - Engineer and DOER," by Charles Ruch, and "Tesla vs. Marconi," by Leland Anderson.

**IEEE/SHOT Prize in Electrical History**

The Society for the History of Technology (SHOT) announces the establishment of the IEEE Life Members' Prize in Electrical History. The Prize, which will be administered by SHOT, was established by the History Committee of the IEEE and is supported by the IEEE Life Member Fund. A cash prize of \$500 and a certificate will be awarded annually to the best paper in electrical history published in the previous year.

Any historical paper published in a learned journal or magazine is eligible if it treats the art or engineering aspects of electrotechnology and its practitioners. Electrotechnology encompasses power, electronics, telecommunications, and computer science. The cash portion of the prize will be shared among all joint authors; individual certificates will be presented to each joint author.

Authors should submit three copies of papers published in 1986 by 15 April 1987 to Professor James E. Brittain, Chair, IEEE Prize Committee, Dept. of Social Sciences, Georgia Institute of Technology, Atlanta, GA 30332.

**Silicon Valley Archives**

The directors of the Stanford/Silicon Valley Project have issued descriptions of the first archives and manuscripts they have collected relating to the history of electronics in Silicon Valley. The Project, which was launched last year by the University Libraries and history of science programs at Stanford (see *Newsletter* No. 11, Spring 1986), has obtained three collections in the areas of microwave and

accelerator technology, robotics, and the computer workplace.

The largest collection was received from Edward L. Ginzton, co-founder of Varian Associates and a pioneer in microwave tube technology and linear accelerator development. (The Center for the History of Electrical Engineering has an oral history interview with Dr. Ginzton, conducted by A. Michal McMahon in 1984. See *Newsletter* No. 8, Spring 1985.) Spanning the years 1937 to 1985, the collection documents Ginzton's prolific career at Varian Associates and Stanford's Microwave Laboratory. The collection includes "correspondence and notes regarding the klystron and the development of medical linear accelerators, as well as materials following the development of the Stanford linear accelerator from the relatively small Mark I machine housed in the physics department to proposals to Congress for construction of the 2-mile-long linear accelerator at SLAC [Stanford Linear Accelerator Center]. Also featured are materials relating to the Varian brothers and research conducted by Varian Associates as well as writings, correspondence and other material written by Dr. Ginzton as a professor, scientist, and administrator" at Stanford.

The Stanford/Silicon Valley Project also received the papers of Charles A. Rosen, who headed the Artificial Intelligence Laboratory at the Stanford Research Institute (SRI) for several years. The first such laboratory on the West Coast, it was especially well known for its work in robotics, which gained public notice when Shakey the Robot was featured in *Life* magazine. The collection consists of "correspondence, contract reports, proposals, notes, and memoranda relating to the ARC [Augmentation Research Center] Lab at SRI from around 1960 to 1980. Of special

interest are proposals to ARPA [Advanced Research Projects Administration] relating to 'intelligent automata,' proposals which led eventually to the development of Shakey and numerous other contributions to the history of robotics and artificial intelligence. Numerous technical reports, conference notes, travel write-ups, and other documentation are also included as are files...on Mr. Rosen's own company, Machine Intelligence."

The third collection documents the career of Douglas C. Englebart, a leader in the development of the computer workplace. The inventor of the computer input device known as the "mouse," Englebart founded the Augmentation Research Center at the Stanford Research Institute in 1962 and directed its lab for several years thereafter. Spanning the years 1953-1967, the Englebart Papers include "correspondence, notes, proposals, technical reports, and numerous 'thinkpieces' which preceded the creation of specific projects. Files relating to projects sponsored by the Air Force Department of Scientific Research, the Advanced Research Projects Administration of the Department of Defense, NASA, and other agencies are also present, as are materials relating to the [Institute of Radio Engineers] Professional Group on Electronic Computers in the early 1950s, one of the first organizations devoted solely to computer technology. Englebart's early work on gas discharge devices is included, as is much of his later work on topics such as digital simulation and the development of [a] prototype of his Augmented Knowledge Workshop."

For more information on these collections and the Stanford/Silicon Valley Project, contact Dr. Henry Lowood, Department of Special Collections, Stanford University Libraries, Stanford, CA 94305 (415-497-4054).

*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).*

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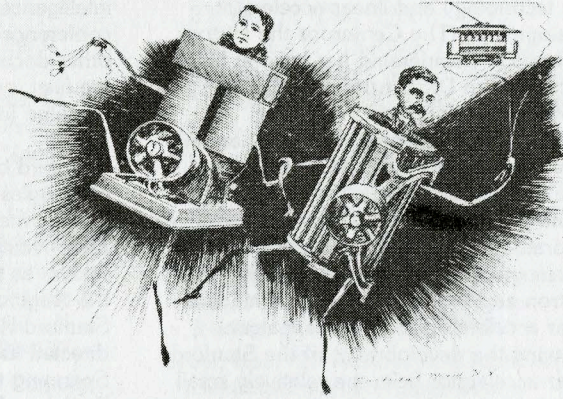
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## EXHIBITIONS AND MUSEUMS

### **“From Inventor to Scientist: Elihu Thomson, 1885-1910”**



Electrical World, 13 Feb. 1892

JUPITER AND VENUS IN CONJUNCTION.

An 1892 cartoonist caricatured Edison (left) and Thomson at the time of the formation of GE, placing the inventors' heads atop their respective dynamos. From the Center's exhibit, "From Inventor to Scientist."

"From Inventor to Scientist: Elihu Thomson, 1885-1910" opened at the Elihu Thomson Administration Building, Swampscott, Massachusetts, on 16 December. The exhibit, which was produced by the IEEE Center for the History of Electrical Engineering, examines the years during which Thomson, one of Edison's chief competitors, made the transition from professional inventor to professional scientist.

Thomson, born in England in 1853, immigrated to Philadelphia with his family in 1858. He attended Central High School there and, after his graduation in 1870, spent a decade teaching science at Central and experimenting and publishing papers with his colleague, Edwin Houston. In 1880, Thomson resigned from Central High in order to develop his and Houston's

arc-lighting system. The American Electric Company was founded that year, in New Britain, Connecticut, to manufacture and sell the system. Three years later, American Electric was reorganized as the Thomson-Houston Electric Company and moved to Lynn, Massachusetts. In 1892, Thomson-Houston merged with Edison General Electric to form the General Electric Company.

When Elihu Thomson came to Massachusetts as Thomson-Houston's chief inventor, his life changed in a number of ways. He married in 1884 and began to raise a family. He developed a number of his inventions into commercial successes. He became one of the world's most respected electrical engineers. But, as the field and the company – especially after the 1892 merger – both grew in size and

complexity, Thomson found it increasingly difficult to turn his ideas into merchandise on his own. Instead, he turned to more fundamental research, such as his investigation of X-rays, leaving the development of specific products to the company engineers.

The exhibit combines photographs, archival material, and artifacts to illustrate this period in Thomson's life. Featured in the show is a bronze replica of the first Edison Medal, awarded by the American Institute of Electrical Engineers to Thomson in 1909 for his "meritorious achievement in electrical science, engineering and arts, as exemplified in his contributions thereto during the past 30 years." This bronze replica, which was cast at the same time as the gold medal presented to Thomson, was donated to the IEEE by Stephen B. Morehouse, IEEE Life Fellow.

Participants in the exhibit opening program included Sylvia Belkin, Chairman, Swampscott Historical Commission; J. Christopher Callahan, Chairman, Swampscott Board of Selectmen; W. Bernard Carlson, Assistant Professor of History, University of Virginia, and 1980-81 IEEE History Fellow; Eric Herz, IEEE Executive Director and General Manager; and Ronald Kline, Director, IEEE Center for the History of Electrical Engineering. The keynote address, "Elihu Thomson: Citizen of Swampscott," was delivered by Nathan Cohn, 1982 IEEE Edison Medalist. A reception in the Elihu Thomson Administration Building, which is Thomson's former home, was hosted by the Swampscott Historical Commission and the Swampscott Board of Selectmen.

"From Inventor to Scientist: Elihu Thomson, 1885-1910," can be seen until 1 July 1987. For more information, contact the Center for the History of Electrical Engineering.



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