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# Center for the History of Electrical Engineering

Newsletter No. 38 Spring 1995

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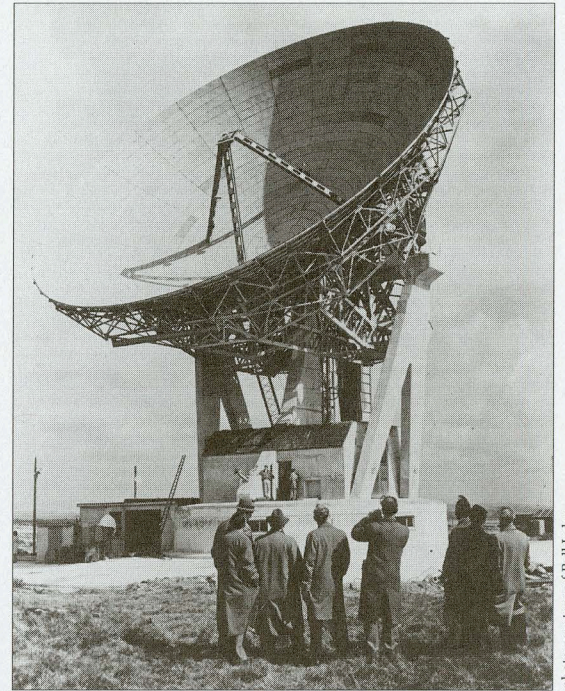
## IEE-IEEE Exhibit

The Center is pleased to announce that it is helping to sponsor the American showing of an exhibit on the history of transatlantic communication, entitled "From Sailing Ship to Satellite", curated by the archival staff of the Institution of Electrical Engineers and extended by the staff of the MIT Museum. The exhibit will be shown in spring and perhaps early summer of 1995 (exact dates had not yet been set as of the closing date for this newsletter) at the MIT Museum, which is located on the MIT campus at 77 Massachusetts Avenue, Cambridge, Massachusetts. Our Center provided some guidance and loaned a few artifacts from our Elmendorf Collection to the IEE exhibit, which showed at IEE headquarters in London from 15 August to 30 September, 1994. We are also providing most of the sponsorship for shipping and insuring the exhibit, so that it can be seen on the American side of the Atlantic.

The exhibit contains a number of important original artifacts never before seen in North America. The following description of the exhibit was prepared by the IEE staff.

*Until the 1840s the speed of long distance message transmission was limited to the speed of a galloping horse or the fastest sailing ship, much as it had been for the previous 2,000 years. Electricity, in the form of the telegraph, changed all that. By 1840, the telegraph had been developed into a commercially viable instrument and within ten years telegraph lines covered most of Britain, Europe, and the settled regions of North America. However, it still stopped at the edge of the sea.*

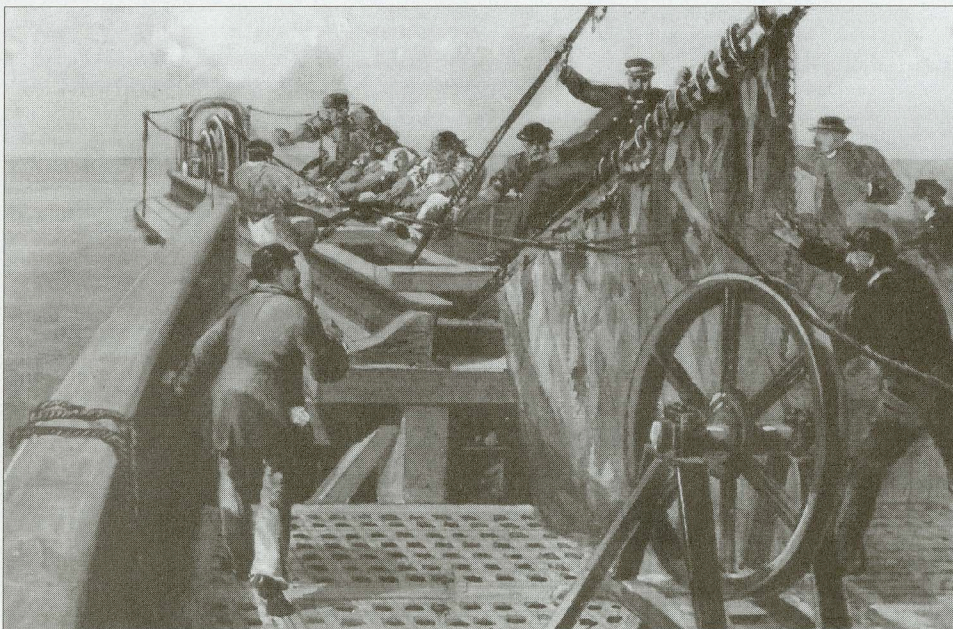
*With the use of film, photographs, models, paintings, and display mate-*



Telstar antenna at Goonhilly Downs, England

*rial, the IEE Summer Exhibition will trace the conquest of the barrier of the North Atlantic Ocean, from the laying of the first transatlantic cable — one of the most exciting projects in history — to the realization of satellite communication. Contemporary images and artifacts of all aspects of transatlantic communication will be on display, ranging from the earliest Victorian telegraph cables of 1858 and 1866 to the first modern communications satellites of the early 1960s and fiber optic cables.*

For more information about the exhibit at the MIT Museum, please contact the museum at (617) 253-4422 or 253-4448.



Crew on The Great Eastern laying the first transatlantic telegraph cable

## STAFF NOTES

## Grad Students

Since September 1994, the Center has been ably assisted by four students of Rutgers' graduate program in history. They have contributed to research for the Power and Control project (see newsletter #31), editing oral history transcripts, cataloging the Center's archival collection, preparation of an upcoming guide to electrotechnology business archives, as well as other ongoing Center projects. Here's a little bit about them:

- Jill Anderson has received a B.A. in history from Carleton College and an M.A. in American history from Vanderbilt University. She plans to write her dissertation on relationships between poetry, aesthetics, and masculinity in the early nineteenth century.
- Rebecca Hartman received a B.A. degree in history from the American University. She is currently planning a dissertation on race, gender, & protest culture in U.S. labor activism of the 1930s and '40s.
- Jim Sullivan received a B.A. and M.A. in history from the University of Florida (Summa Cum Laude, Phi Beta Kappa.) He is currently writing a biography of Dr. Benjamin Spock which explores the popularization of Freudian ideas in U.S. culture.
- Veronica Wilson graduated from Kansas State University with a B.A. in history and political science. She is planning a dissertation on spies, subversion, and gender in 1950s cold war America.

## Secondment to IEE, London

The IEEE and its British counterpart, the Institution of Electrical Engineers, agreed in 1994 to establish an exchange program under which staff from one organization would be seconded to the other for a short period of time. It is hoped that this program will enable the two organizations to better understand how each other operates, as well as to share skills that might not be readily available in both organizations. The Center's director, William Aspray, will be one of the first people to participate in this exchange program.

Under this program, Dr. Aspray will spend approximately one month in the IEE archives in London this summer. His activities may include the following:

- Providing historical interpretation for the IEE summer exhibit
- Participate in the IEE annual weekend history conference

## Post Doc Hired

We are pleased to announce the hiring of Jane Morley as the Center's new postdoctoral scholar. She will begin a three-year appointment at the Center beginning in the fall of 1995, where she will teach a partial load in the history department and work on historical projects of the Center.

Morley holds a B.A. in history from Duke, M.A. in history and M.S. in library science from North Carolina-Chapel Hill, and will receive the Ph.D. from the History and Sociology of Science Department of the University of Pennsylvania this spring. She has held visiting appointments or postdoctoral fellowships from the Smithsonian's National Museum of American History, the Swedish Royal Institute of Technology, and Purdue University. For one year she worked as the historian for the American Society of Civil Engineers. She has also worked as an assistant on the editorial staff of *Isis: The Journal of the History of Science Society* and the Edison Papers Historical Project.

She has curated an exhibit on the historian and social critic Lewis Mumford and is the series editor for history of technology at Purdue University Press. She has edited four book-length works including a research guide and a bibliography on Lewis Mumford, and an index to *Isis*. She has been a teaching assistant or instructor

at the University of Pennsylvania, North Carolina-Chapel Hill, and Shanghai Jiao Tong University in China.

Her research interests are in the history of technology and the history of architecture. Her dissertation is on Frank Gilbreth, the early twentieth-century building contractor who pioneered new techniques for concrete construction. Gilbreth is better known as the initiator of time-and-motion studies and for being the subject of the book and film *Cheaper by the Dozen*.

## Riddle Completes Survey

John Riddle, our project archivist (see newsletter #34), has recently completed his work for the Center. The result of his effort, a survey of the archival operations of select electrical technology companies around the world, will be published by the Center later this year.

The Newsletter reports on the activities of the Center and on new resources and projects in electrical history. It is published three times each year by the Center for the History of Electrical Engineering.

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Staff Publishes  
Articles

Two articles written by Center staff appear in a recent issue of the journal *Historical Studies in the Physical and Biological Science* (Volume 25, part 1—cover date 1994). Loren Butler contributed an article entitled "Robert S. Mulliken and the politics of science and scientists, 1939-1946" in which she explores the political activism of the Nobel-prize winning chemist Mulligan. Butler examines the steps Mulliken took to draw upon the cultural and intellectual authority that had accrued to science by the end of the interwar period to use scientism to prescribe the route to a better society. The other article is Frederik Nebeker's "Strings of experiments in high-energy physics: The upsilon experiments." Nebeker investigates the experiments at Fermi National Accelerator Lab between 1970 and 1990 that uncovered the upsilon particle, an archetypal "big science" research program, in order to elucidate the complicated process by which one experiment leads to another. His analysis considers the influence of scientific, technical, personal, and institutional factors in determining the direction of strings of experiments.

ESL Collection  
Moves

On January 25, 1995, a dinner was held in New York City to mark several major changes in the Engineering Societies Library, one of America's foremost engineering libraries. This library, which has been operated jointly by the major American engineering societies for most of the twentieth century, is being disbanded. The bulk of the collection is being donated and moved to the Linda Hall Library in Kansas City, with certain duplicative materials being returned to the engineering societies. Linda Hall's engineering holdings will be increased by approximately 50% by this acquisition, strengthening its place as one of the major American libraries for technology and engineering.

Two other changes were marked at the same time. The Wheeler Collection, a valuable collection of books, journals, and pamphlets for the study of the history of electrical technology is being donated to the Rare Book Collection of the New York Public Library, which has wonderful new underground facilities at its main branch on Fifth Avenue. Linda Hall Library and the United Engineering Trustees have established a

new joint venture, called Linda Hall Library East, located in the United Engineering Building where the Engineering Societies Library used to be housed, which will provide a reading room for current engineering materials and electronic access to other materials.

Theodore Hissey, Executive Director of the IEEE, remarked on the IEEE's long involvement with the Wheeler Collection and IEEE's pleasure in seeing it deposited in a library which has the means to catalog, conserve, and display the collection properly and give good access to researchers.

The original collection was assembled in the nineteenth century by Josiah Latimer Clark, a noted English telegrapher and bibliophile. Clark's library came to the United States through the efforts of Schuyler Skaats Wheeler, an American electrical manufacturer. When it went on the market in 1901, Wheeler purchased the library and donated it to the American Institute of Electrical Engineers. In the Deed of Gift, Wheeler stipulated that the AIEE catalog the collection and maintain it as the nucleus of a reference library. Andrew Carnegie matched what Wheeler had paid for Clark's library to fund the cataloging, and donated one million dollars to construct a building for the national engineering societies and their libraries. The Wheeler Gift made up the bulk of the AIEE's library for a few years, but then was merged with the holdings of the other societies to form the Engineering Societies Library in 1913.

Wheeler's Gift is impressive by any standard of measure. The main part of the collection contains nearly three thousand books published in Latin, French, German, Italian and English from the late nineteenth centuries. The earliest works, numbering about two hundred, recount the magical powers of the lodestone, the vagaries of the mariner's compass and theories of electricity and magnetism from Pliny to Descartes. Eighteenth-century electricians are well represented by about four hundred books, including several by Franklin, Priestly, Aepinus, and Coulomb. The strength of the collection lies in the nineteenth century—over two thousand volumes covering both science and technology. The standard treatises of electrophysics from Volta to Maxwell are here, as well as books and articles by hundreds of lesser known physicists. The material on British telegraphy is especially rich, given Clark's particular interest and expertise in this field. But he did not neglect telephony, nor the early history of electric insulation, electroplating, and electromagnetic motors. Of particular interest to historians of electrical engineering are the more than one hundred sets of



Schuyler S. Wheeler

electrotechnical periodicals published in Europe and the United States from the 1840s to the end of the century.

The remainder of the collection holds special value because of the scarcity of many of the items. The catalog lists well over three thousand entries for this part of the library, about half of which are articles reprinted from periodicals. But the other half includes such rare "near print" materials as regulations, reports, and prospectuses of telegraph companies, reports of early electric lighting firms, trade catalogs and price lists, and exhibition brochures.

Much of the information in this article is extracted from "Wheeler's Gift of Electrical Books at the Engineering Societies Library: A Legacy and a Responsibility", a paper that Center staffers Ronald Kline, Joyce Bedi, and Thomas Lindblom published in the Summer 1987 issue of *Science & Technology Libraries*. The paper not only gives the Wheeler Collection's history, it also presents a detailed statistical analysis of the collection's contents, broken down by subject matter, date, and physical condition. Copies of the Kline, Bedi, Lindblom paper, which was supported by a gift from the IEEE Life Members, are available from the Center.

# Talking Archives

A conversation with Andrew Goldstein, the Center's curator.

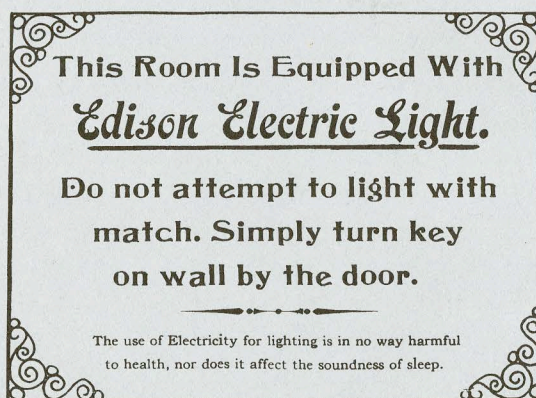
## The Center has an archive for the history of electrical engineering?

Yes, we do. One of the Center's most important responsibilities is to record, interpret, and preserve the history of the IEEE. To do that job, the Center collects many of the IEEE's important records and keeps them in an archive.

## What sort of materials do you keep?

The Center's collecting focuses on the unpublished records of the IEEE. This includes minutes to meetings of significant IEEE committees, the files of IEEE officers, documents revealing the priorities and operations of IEEE staff departments, such as Spectrum or Membership Services, and the like. Our goal is to be able to answer the questions "How was the IEEE run, what did it do, and why was it done that way?"

The archive also holds some of the treasures accumulated over the IEEE's long history. We have the membership files of some of the Institute's most noteworthy members, including Thomas Edison, Nikola Tesla, and Charles Steinmetz, which contain miscellaneous items such as membership applications and letters of reference. We have also got artifacts that pertain to IEEE history, such as member pins and certificates, and gifts presented to the IEEE by other learned societies.



One item found in the center's archive

## How big an operation is the archive?

The principal storage site is a secure room in the Piscataway Operation Center that measures approximately 28 sq. meters. Oversized items, and those items that are infrequently used, are kept in the IEEE warehouse. All told, we hold approximately 300 linear feet of paper records (the linear foot is the standard unit in the US for measuring archival collections) and some 300 artifacts.

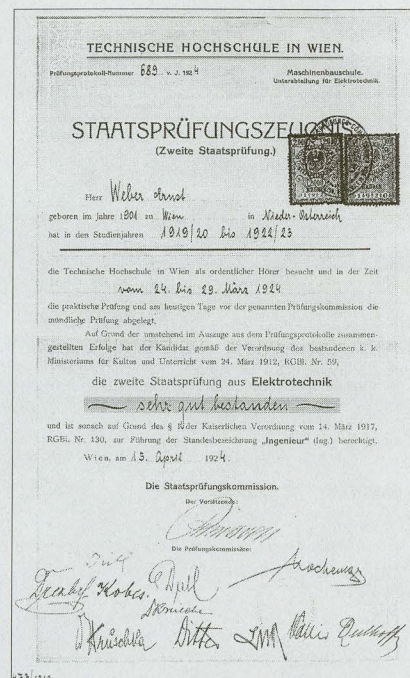
The greatest challenge connected with the archive is managing it with the limited resources we have available. Right now, we have only one person working part time in the archive. The job entails maintaining the collection, overseeing its growth, and providing access to IEEE members and staff. Our long-term ambitions to improve the organization of the holdings and develop finding aids to facilitate research must frequently take a back seat to these immediate needs.

## I'm surprised. I'd have guessed that IEEE had far more historical material than that, and more staff to manage it.

Quite right! The Center's archive is just one part of the IEEE's total historical record-keeping operation. The "archival" copies of much of what IEEE produces are not, in fact, held by the Center archive, but by some other entity within IEEE's walls. For example, back issues of major IEEE publications are kept by the IEEE Library, which works closely with the history center, but is managed independently. Out-dated standards are kept by the IEEE's Standards department, the Board of Directors' meeting minutes are held by a staff department called Corporate Services, files on IEEE awards and memberships are maintained by those function's staff departments, and so on. The Center's archive primarily collects unpublished materials that relate to the operation of the Institute itself, not the technology and profession that the Institute exists to promote.

## So all you have in the archive, then, are IEEE records?

Pretty much. The Center does not collect archival material that documents the history of electrical engineering in general (as opposed to the history of the IEEE.) There are some important exceptions, however. The Center's photo collection contains many contributions that pertain to more than just the IEEE. As long as a photograph illustrates some person, organization or technology that is significant to the history of electrical engineering, we are usually willing to accept it. Also, the archive houses the original recordings of all of our oral history interviews, most of which run the gamut of topics that interest our members. It is worth mentioning that the Center has an extensive collection of non-archival holdings on the history of electrical engineering in general. These include materials that are



Ernst Weber's diploma

informative, but neither rare nor of permanent historical interest. We keep such material in our New Brunswick office.

## How can I find out what the archive contains?

Center staff is working on catalogs for each of the different collections that we keep in the archive. As these are completed we will make them available over the IEEE's World Wide Web server, as well as printing them traditionally for the benefit of people who are not on the 'net. It's a big job and will take years to complete, but look in this newsletter for updates about what is available.

## How do I use the archive?

Researchers are welcome to visit the archive. Because there is no full-time staff there, advance arrangements are required. Just contact the Center and we will find a time when you can visit. You may also send us your questions concerning the history of the IEEE (and EE in general) and we will be happy check our resources, both archival and non-archival, for answers. We are also happy to assist IEEE members who are interested in finding a permanent home for their papers. Although the Center's archive can only accept IEEE-related material, we are often able to recommend appropriate alternatives based on the technical or institutional content of the collection being donated. Write us and we will send you a brochure we have prepared as a first step in figuring out how we can help you preserve your portion of electrical engineering's proud heritage.

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The Newsletter's "Bibliography" section was prepared with the assistance of Prof. Thomas J. Higgins of the University of Wisconsin-Madison.

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This book is a new, much-enlarged edition of *Big Ear*, published in 1976. Big Ear is a radio telescope at the Ohio State University that John Kraus planned and built in the mid 1950s. In the decades since then it has been one of the world's most important radio telescopes. In 1970, astronomers there discovered a very strong source, named OH471, which turned out to be the most distant object so far discovered. Big Ear has also been prominent in the search for extraterrestrial intelligence.

This autobiographical book is written in an informal, engaging way. Though most of the book deals with radio astronomy, a substantial part concerns the author's experiences in amateur radio and in radar and physics research. Because of his radio hobby, he became an expert in antenna design; in the 1930s he designed a "flat top beam antenna" that was rapidly adopted by radio amateurs worldwide. At the time of World War II he worked both at the Naval Ordnance Laboratory on magnetic-mine countermeasures and at the Radio Research Laboratory at Harvard on radar countermeasures. Throughout the book, Kraus's enthusiasm, both at the time of the events related and in the retelling, comes through clearly.

**Theodore Rockwell, *The Rickover Effect: How One Man Made a Difference*.** Annapolis, MD: Naval Institute Press, 1992, xviii + 411 pages, illus.

In *The Rickover Effect: How One Man Made a Difference*, Theodore Rockwell presents a participant's view of the engineering achievements of Admiral Hyman Rickover, recognized as the father of the nuclear Navy. Rockwell joined Rickover's Naval Nuclear Propulsion Program in 1949, and worked under him until 1964. During this fifteen-year period, Rickover supervised the creation of the Navy's fleet of nuclear submarines and carriers, an accomplishment that shaped not only the Navy but also much of America's nuclear power industry.

The "Rickover Effect" of the title refers to

the remarkably widespread influence that Rickover's projects had throughout the Navy and beyond, due in part to the high standards to which Rickover held himself and those who worked with him. Rockwell's detailed and insightful account illustrates Rickover's remarkable personality and achievements and—perhaps for the first time—also demonstrates his influence on the development of the commercial nuclear power industry. Rockwell goes beyond Rickover's engineering work to discuss his passionate and active interest in the American educational system as well. Rickover was clearly a powerful and enigmatic man, and one of the most influential engineers of the twentieth century. The intimate view of his career that this book provides is an important addition to the study of the history of nuclear engineering.

This volume will be of interest to power engineers as well as to historians of technology, the Navy, and the power industry.

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## And Don't Miss . . .

- The journal *Measurement + Control* has recently published a golden jubilee issue celebrating the 50th anniversary of Great Britain's Institute of Measurement and Control in London. In addition to a summary history of the Institute, originally known as the Society of Instrument Technology, Ltd., the issue features several invited historical papers. Among these are Chris Bissell's "Spreading the word: aspects of the evolution of the language of measurement and control" and "Early Recollections" by Don Tallantire. For more information about the issue, which bears cover date June 1994 (volume 27, number 5), contact The Institute of Measurement and Control, 87 Gower Street, London WC1E 6AA, Tel: 071 387 4949, Fax: 071 388 8431.

- A recent issue of the journal *Centaurus* (volume 36, cover date 1993) contains a lengthy essay by Oliver Darrigol on the electro-dynamics of moving bodies from Faraday to Hertz. *Centaurus* (ISSN#0008-8994) is printed in Denmark. Darrigol's address is CNRS, 83 rue Broca, 75013, Paris, France.

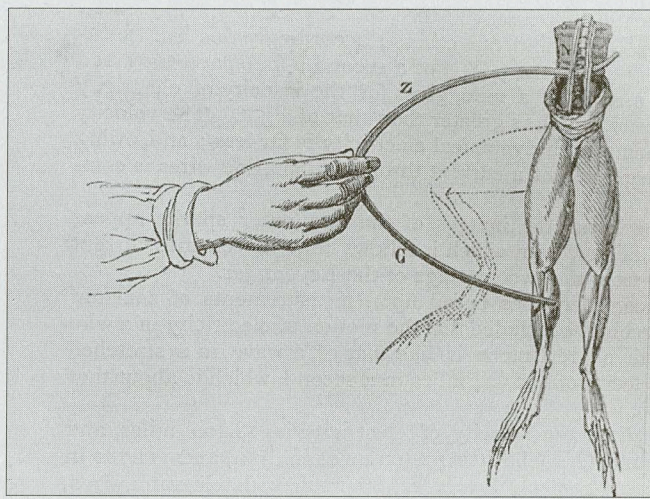
- Anthony Gandy has recently completed a dissertation in which he investigates the reasons why the large electronics firms in the U.S. and the U.K. did not, generally, succeed in the emerging computer market during the 1950s and '60s. Gandy's research includes case studies of such firms as RCA, General Electric, Ferranti, EMI, English Electric, IBM, Burroughs, NCR, Sperry Rand, Honeywell, CDC, DEC, and ICT. For more information contact Anthony Gandy, 1, Gore Road, Raynes Park, London, SW20 8JN, England.

- Sigfrido Leschiutta has published several articles on the early history of electrical research in Italy. Among these are "Indagini Storiche sui Cultori Italiani in Disciplina Elettriche tra il 1800 ed il 1850" and "I Primi Cento Anni Delle Misure Elettriche (calze di seta, palline di sambuco, rane et similia)", both of which Leschiutta presented at conferences spon-

sored by the Consiglio Nazionale delle Ricerche and the Gruppo Misure Elettriche ed Elettroniche. For more information, contact Sigfrido Leschiutta, Dipartimento di Elettronica, Politecnico di Torino, C.so Duca degli Abruzzi, 24, 10129-Torino, Italy.

- Major A. Johnson has recently published "Progress in Defense and Space: A History of the Aerospace Group of the General Electric Company." This book, called a "splendid effort" by radar historian Louis Brown, gives a detailed administrative history of this important organization. The 656 page volume costs US \$25. For more information, contact A. Johnson, 14 Pray Street, Rochester NH 03868-5903.

- The history of the linking of the enormous electric power grids of America's west and east is told in "Western Power System Interconnection", a booklet recently published by Elmer F. Kaprielian. A veteran of 41 years of service with Pacific Gas



Galvani demonstrates electric current causes a frog's leg to twitch

and Electric, Kaprielian fills his 68 page booklet with recollections about his diverse career in power engineering. To order copies of the booklet, contact Pacific Gas and Electric Co., 77 Beale Street, San Francisco CA 94106.

- Eleven essays in the recent issue of *Osiris* (volume #9, edited by Albert Van Helden and Thomas L. Hankins) take stock of the impact of new instruments in both the physical and life sciences, carefully considering the interplay between instruments and authority, audience, and culture. To order, contact The University of Chicago Press, Journals Division, PO Box 37005, Chicago IL 60637.

## Air and Space Museum

The National Air and Space Museum has announced that a "virtual" tour of the museum is being made available on the World Wide Web. Included will be all the text and photos from "Beyond the Limits," the gallery that showcases the history of aviation/space and computer technology. Museum curator Paul Ceruzzi warns that things are "very much under construction," but he invites interested parties to check out what they have done. There is a form for leaving comments. The World Wide Web URL (address) is <http://ceps.nasm.edu:2020/NASMAP.html> (note: the URL is case-sensitive.)

## Codebreakers

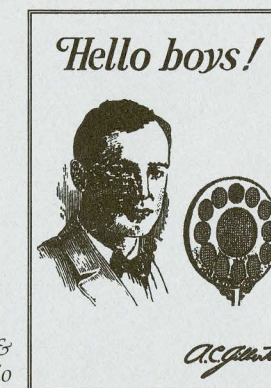
On September 14-17, 1995, the U.S. Air Force Museum and Carillon Historical Park are co-hosting a reunion of personnel assigned to the U.S. Naval Computing Machine Laboratory at the National Cash Register Company in Dayton, Ohio during World War II. While the focus will be on the WAVES in the group, the reunion will also include all naval and civilian personnel associated with OP-20-G both in Dayton and in Washington DC. The purpose is to honor all those involved who, because of the secret nature of the work, were never given any public recognition. Both the U.S. Air Force Museum and Carillon Historical Park will mount exhibits on the innovative work done by the USNCML.

Those who were assigned to the OP-20-G project who are interested in attending should send their name and address to Mary Mathews, Carillon Historical Park, 2001 S. Patterson Blvd., Dayton OH 45409.

## SHOT Mercurians

The Mercurians organized in 1986 for the purpose of generating networks between people who share work and interests in the history of communication technologies, defining the field broadly. Mercurians operate as an interest group within the Society for the History of Technology (SHOT), so a majority, but by no means all, participants are SHOT members. The group's activities include publishing a semi-annual newsletter, *Antenna*, meeting annually at SHOT's conferences, organizing paper sessions for SHOT meetings, and

## BRIEFS



Gilbert & The Radio

pursuing contacts between meetings. *Antenna* serves both as a clearinghouse for readers and an informal forum for their ideas. Members welcome contributions including notices and queries about Mercurians' projects as well as short essays. *Antenna* includes book reviews and pertinent materials about conferences, museums, publications, archives, funding, and other related institutions. All interested persons are welcome at Mercurians' meetings, however, the fee to receive *Antenna* is \$5.00 for a two year period (\$6.00 for delivery to Canada and Mexico, and \$8.00 elsewhere). Please make your check out to SHOT, specifying Mercurians in the memo line. For information, or to join, contact Editors and Coordinators: Lori Breslow, Sloan School of Management, MIT, 50 Memorial Drive, Cambridge, MA 02142-1347, or Pamela W. Laird, P.O. Box 6972, Denver, CO 80206, tel: (303)722-7951, fax: (303)556-6037; e-mail: FLAIRD@DU.EDU.

## History Poster

The Edison Electric Institute has released a poster chart mapping the history of electrical technology. The poster, called "Electricity—the Power of Progress," identifies milestones in twelve different families of electrical technology, and shows how each of those lines themselves branch from such fundamental developments as Oersted's recognition of the connection between electricity and magnetism in 1820, the invention of the electron tube in 1904, and the invention of the transistor in 1947. The poster is approximately 1 meter x .6 meter and comes with a 31 page booklet that provides detailed elaboration on the highlighted developments. To order the poster, contact the EEI order and billing department at tel. (202) 508-5424 or 5425 and ask for publication number 07-92-34 (for the poster) or number 07-92-45 (for the booklet.)

## Whitney Museum

The Eli Whitney Museum in Hamden, Connecticut has opened an exhibit entitled "Gilbert & the Radio." The exhibit explains how A.C. Gilbert, an early twentieth-century toy manufacturer, undertook a brief experiment with radio, opening Connecticut's first broadcast station in 1920 and thereby discovered the new medium's power to promote products and people. For more information, contact the Eli Whitney Museum, 915 Whitney Avenue, Hamden, CT 06517, tel: 203 777-1833.

## Townes Oral History

The Regional Oral History Office of the Bancroft Library, University of California, Berkeley, announces completion of the oral history of Charles Townes. The oral history, with a transcript of 691 pages, documents Nobel Laureate Townes' discovery of the maser and the laser; the history of physics since the beginning of World War II; and develops for the reader the remarkable personal qualities which underlie Townes' success as a scientist, an academic leader, and an advisor to government and industry. For more information, or to order copies, contact Regional Oral History Office, 486 Library, University of California, Berkeley CA 94720, tel: (510) 642-7395.

## Takanori Okoshi

The Center is saddened to report the death of Takanori Okoshi, one of its respected collaborators. As head of the Institute of Electrical Engineers of Japan's history committee (see newsletter #26), Okoshi helped the Center plan some of its recent research in Japan. He was even the subject of some of that research, sitting for an oral history interview in which he discussed his career in high-speed and multiplexed optical fiber communications. Okoshi spent most of his career as a professor of Electronics at the University of Tokyo, where he earned his B.S., M.S., and Ph.D. degrees in Electrical Engineering in 1955, 1957, and 1960, respectively. He authored eighteen books, including four in English. He received twenty-three awards from the IEEE and six Japanese academic institutions, including the 1989 Morris N. Liebmann Award, and the 1993 Japan Academy Prize.

## CONFERENCES



Edwin Armstrong with early "portable" radio

## Radio and American Culture

A panel on radio broadcasting and American culture will be part of an upcoming American Studies conference. The session is designed to arouse greater awareness of a subject that has recently generated renewed critical interest within media studies and cultural history. Papers addressing the relations between industry, sponsors, performers, and audiences during the pre-television years will be featured, but scholars working outside this time frame or in other areas (including technology) have also been encouraged to submit. For more information, contact Matthew Murray, Department of Communication Arts, University of Wisconsin-Madison, Madison WI 53706, tel: 608 263-3998, Email: mjmurray@students.wisc.edu.

## ICOHTEC '96

The next symposium of ICOHTEC (International Committee for History of Technology) will take place in Budapest, Hungary, on August 7-10 (or 7-11), 1996, following the Society for the History of Technology meeting in London. The main theme will be "past, present, and future forms of communication," dealing with media such as printing and the press, film, radio, television, telephone, etc. There will be a session on national comparisons of microelectronics and the computer industry, with special reference to Eastern Europe, including the topic of technology transfer. In addition, there will probably also be sessions on the relationship between technology and music and a comparison between different technocratic movements in various countries. For more information, contact Dr. Eva Vámos, National Museum for Science and Technology, Kaposvár u. 13, H-Budapest PoB 311, Hungary.

## Democracy &amp; Communications

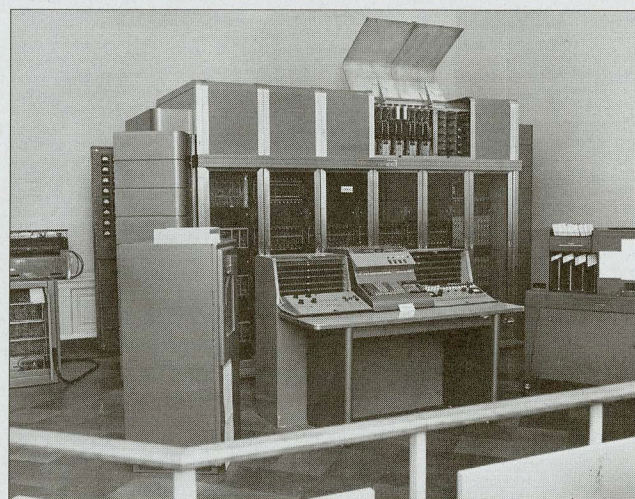
An international symposium on democracy and the culture of communications will be held at Case Western Reserve University in Cleveland, Ohio on April 28-29, 1995. This symposium will examine the relations between democracy and communications technologies, including the computer, telegraph, and printing press. Discussion will be conducted by leading scholars in the fields of history, anthropology, cultural studies, computer science and engineering, law, management, and political theory. Scheduled speakers include Catherine Bertho-Lavenir, Richard John, Arthur Norberg, Bryan Pfaffenberger and Mark Poster. For more information, contact Mark Bowles, tel: (216) 368-5599, fax: (216) 368-4681, Email: mx67@po.cwru.edu, or write to Professor Miriam Levin, Department of History, Case Western Reserve University, Cleveland, OH 44106.

## IEE Summer Conference

The Institution of Electrical Engineers will hold its annual weekend history conference in Canterbury from July 7-9, 1995. For more information about the program, please contact Dr. Brian Bowers, Science Museum of London, South Kensington, London SW7 2DD, U.K.

## Torres Quevedo Symposium

A symposium of the life, times, and work of Spanish computer pioneer Leonardo Torres Quevedo will be held in Madrid on April 24-28, 1995. The language of the conference will be Castilian. For more information, contact Francisco A. González Redondo, Edif. "Pablo Montesino", Facultad de Educación (U.C.M.) c/Santísima Trinidad, 37, 28010 Madrid, Spain, tel: 91 394 66 84, fax: 91 394 66 72.



Johnniac computer, circa 1950s

## Computers in France

An international colloquium on history of computer science will be in Rennes, France on November 14-16, 1995. The colloquium, which is the fourth in a series that includes previous meetings in Grenoble (May 1988), Paris (April 1990), and Sophia-Antipolis (October 1993), will focus on the themes of communications between persons, machines, and systems, and data processing and the military. Presentations will be made by historians as well as the scientists, engineers, and managers responsible for

the development and application of computers in government, university, and private contexts. All papers will reflect rigorous historical methodology. The language of the colloquium will be French, but papers on computer history in other countries are encouraged by the review committee. For more information, contact Jacques André, IRISA/INRIA-Rennes, Campus Universitaire de Beaulieu, 35042 Rennes Cedex, France, tel: (33) 99 84 73 51, fax: (33) 99 84 71 71, Email: chir@irisa.fr.

## CONFERENCES

## IEEE History Conference

The principal target audience for most Center activities is the engineering community. However on August 1-4, 1995, the Center will sponsor a conference intended for a different audience, those people who by training or employment professionally study the history of electrical technology. The conference is intended to give ample time for members of this professional community to get to know one another and to discuss methodological and historical issues at length.

The conference setting is informal, and to encourage that we have set the venue in the heart of vacation country in the Berkshire mountains of northwestern Massachusetts. The conference will be held on campus at Williams College, and all college facilities are open to participants who pay to stay in the dormitories, which are available at low cost.

If you are a professional historian interested in attending the conference, please contact the Center.

## Telecommunications

The Third International Symposium on Telecommunications History will be held on June 21-22, 1995 in Wilmington Delaware. Billed as a symposium "for those seriously interested in the history of telecommunications with an emphasis on telephony," the meeting will include papers on topics such as telecommunications inventions, telephone engineering, biographies of telephone pioneers, economics, finance, competition, regulation, legal conflicts, manufacturing and operating companies, local and long-distance telephone companies, archives and museums and other sources of historical material, and social changes brought about by advances in the art and science of telecommunications. The registration fee will be under \$100 per person. The symposium is being sponsored by the Edmonton Telephone Historical Information Centre Foundation and Telephone Collectors International, Inc. For more information, contact Russell A. Pizer, 305 Cooper Road, North Babylon, NY 11703-4430, fax: 516 422-2324.

## IEE Conference on 100 Years of Radio

The IEE will hold a conference on 100 years of radio history on September 5-7, 1995 at the Institution's headquarters in London. The IEE notes that "1895 saw the first steps in the application of the science of electromagnetic radiation and the development of components for practical radio communications. Since the 1890s there has been continuous growth in the capability and complexity of radio engineering with a very wide variety of applications, along with the consequent developments in technology and in the impact of widespread and

immediate availability of information on society and the world's economies. The aims of this celebratory conference are to consider the development of radio, from the 1890s to the present day, with reference to the



Carl Jansky

## NASA

The discoveries of Carl Jansky and Grote Reber, often cited as the starting point of

radio astronomy, launched the modern era of telecommunications. In the past, the ionosphere defined the limits of radio communication; today, by going beyond the ionosphere and reflecting off satellites rather than the ionosphere, broadband telecommunications has entered a new age. "Beyond the Ionosphere," a conference to be held October 17-18, 1995, at NASA headquarters in Washington, DC, will deal with the first attempts to go beyond the ionosphere, including both the earliest uses of the moon as a passive, natural relay satellite and project Echo, as well as with contemporary communications via man-made moons in geostationary orbit about the earth. It will deal with both American and non-U.S. satellite telecommunications, histories of satellite communication companies, the role of government agencies (such as NASA, the ESA, and the British Foreign Office), state telecommunications offices (such as France Telecom), and research laboratories.

Historians and sociologists of science and technology, economists, political scientists, and public policy scholars are invited to attend, as well as scientists, engineers, technicians, and managers in the field of

conditions (technical, financial, social, political and general) under which this development has taken place." Topics of papers will include marine radio, pre-broadcast developments, broadcasting (AM, FM, DAB, and other systems excluding television), HF communications (including SW beam systems), data radio communications, military communications, satellite communications, microwave point-to-point communications, mobile and cellular radio, amateur radio, LF and VLF communications, receiver and transmitter development, antennas and propagation, development in components (including miniaturization), social origins and impact of radio, and biographical papers. For more information, contact HYR95 Secretariat, Conference Services, Institution of Electrical Engineers, Savoy Place, London WC2R 0BL, tel: 071 344 5477, fax: 071 497 3633, Email conference@iee.org.uk.

satellite telecommunications. One of the key objectives of the conference is to bring scholars and practitioners together.

Plans for the conference include three sessions and a tour of the COMSAT research and development laboratories in nearby Clarksburg, Maryland. Dr. John V. Evans, who witnessed the beginnings of lunar-relay communications at Jodrell Bank in England, and the current president of COMSAT Laboratories, will conduct the tour.

For more information, contact Roger Launius, Code ICH, NASA Headquarters, Washington DC 20546, tel: 202 358-0384, fax: 202 358-2866, Email: rlaunius@code1.hq.nasa.gov.

## IUHPS

The twentieth International Congress of History of Science, Technology, and Medicine, organized by the International Union of History and Philosophy of Science, has already been scheduled to take place on July 25-30, 1997 at the University of Liège in Belgium. The theme of the conference will be Science, Technology, and Industry. For more information, contact Congress Office, Centre d'Histoire des Sciences et des Techniques, Université de Liège, Avenue des Tilleuls 15, B-4000 Liège, Belgium, tel: 32 41/66.94.79, fax: 32 41/66.95.47.

## Region 3 History Available

A history of Region 3 of the IEEE, covering the southeast United States, has been prepared by W.L. Sullivan, region director in 1974-75. Sullivan's manuscript covers the period from 1963, when the region was organized under the new IEEE, to the present day. The narrative history is over 65 single spaced pages, supplemented by several charts and appendices that give useful information in convenient tabular form. The manuscript has not yet been published, but it is available in hard copy or on disk. Plans are underway to post the document on an electronic bulletin board, allowing connected users to easily download the file. For more information, contact W.L. Sullivan, 2960 Green Valley Rd., Snellville GA 30278.

## '95-'96 Fellowship Goes to Morton

The 1995-96 IEEE Fellowship in Electrical History has been awarded to David Morton. Mr. Morton is writing a doctoral dissertation at the Georgia Institute of Technology on the history of magnetic recording. His research, which investigates the magnetic recording industry in the American south, has resulted in a recent article, "The Rusty Ribbon: John Herbert Orr and the Making of Magnetic Recording Industry, 1945-1960," which Morton published in the Winter 1993 issue of *Business History Review*. The Fellowship is made possible by the generous support of the IEEE Life Member Fund

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## Partnership Program

We are grateful to the organizations and individuals listed below who provide generous support to the Center in the form of operating, endowment, and project funding. If you or your organization are interested in joining our Partnership Program, please contact the Director, Dr. William Aspray.

Founding Partners:	IEEE Rutgers University IBM Corporation IEEE Foundation - General Fund IEEE Foundation - Life Member Fund Andrew W. Mellon Foundation Alfred P. Sloan Foundation
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We are also grateful to the thousands of individuals and institutions who make annual contributions to our Friends Fund.

## New Associate

We welcome Eiichi Ohno of the Mitsubishi Electric Corporation as the newest member of our Partnership Program.

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