Tele-Visionaries: The People Behind the Invention of Television is a portrait of the invention and development of television drawn by one of the engineers present during this period. IEEE Fellow Richard C. Webb worked at RCA from 1939 to 1954, first as a research fellow at Purdue University and later as a staff research engineer. He had personal contact with many of the fellow innovators he discusses. Webb provides a basic chronology of events, but as the title indicates, Webb’s focus is on the men behind the technologies, and he introduces the reader to many of the key figures, including Edwin Armstrong (whose work Webb admires), Vladimir Zworykin, and Philo Farnsworth. Webb defends and champions the contributions of David Sarnoff that “greatly accelerated the development of television,” and introduces the reader to Roscoe George and Howard Heim, whom Webb worked with at Purdue, and Al Schoeder, a lifelong friend whom he calls “the father of the shadow mask color kinescope which is probably the most important single development in color television history.” While more detailed general histories of television have been written, Tele-Visionaries does not strive to be such a text. As Webb himself says, “Do not think of me as a historian chronicling all of this . . . I am simply one of the engineers who was there at the time it was happening, and I am just telling you what I saw.” He is able to recall such events as his first day of work at RCA Laboratories, through the installation of the video-telephone system in the White House, which was completed in 1961, and of meeting Dwight Eisenhower in 1963. Webb also includes an appendix with several photocopied pages of Zworykin’s personal copy of the RCA original summary report on the development of the Iconoscope.


As I write this, the IEEE History Center is recognizing the 15th anniversary of its arrival at Rutgers University, having just a few weeks ago celebrated the 25th anniversary of its very existence—a doubly cause for celebration. That means for twenty-five years, my staff and I—and our predecessors—have been beating the drum for public awareness and appreciation of the role of the engineer in history of society. Finally, I am happy to report, we—and our many allies—may be making some headway. Following are four recent examples:

The media coverage of the recent loss of Jack Kilby has shown the impact an engineer can have on our lives. His death was front page news around the world. Newspaper editors grasped that what Kilby accomplished has had a profound effect on the development of the world as we know it today, accomplishments at least as important in their way as the work of any politician or civic leader. As The Guardian newspaper in the U.K. pointed out, his chips “now control most music and media players, digital cameras, mobile phones and other devices, as well as calculators, computers and games consoles.” In other words, the stuff of the modern world!

In the recent “Top 25 Greatest Americans of All Time” competition by the Discovery Channel, Benjamin Franklin ranked fifth (and second only to George Washington among the “Founding Fathers”), Thomas Edison 15th, Bill Gates 16th, the Wright Brothers 23rd, Henry Ford 24th, and Neil Armstrong 25th. Although Franklin’s recognition may be more the result of his work as a statesman, civic leader and scientist than as an inventor and engineer, we can still take pride in his high placement on the list. Bill Gates and Henry Ford are probably on the list for their wealth and the economic impact of the companies they founded rather than their technological achievements. Neil Armstrong is there for being the first human being to walk on the moon, not for the engineering training that enabled him to become the first civilian to enter NASA’s astronaut program. Only Edison and the Wrights probably figure in public consciousness as “engineers.” Still, it is re-invention of the recent loss of Jack Kilby that has shown the impact an engineer can have on our lives. His death was front page news around the world. Newspaper editors grasped that what Kilby accomplished has had a profound effect on the development of the world as we know it today, accomplishments at least as important in their way as the work of any politician or civic leader. As The Guardian newspaper in the U.K. pointed out, his chips “now control most music and media players, digital cameras, mobile phones and other devices, as well as calculators, computers and games consoles.” In other words, the stuff of the modern world!

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STATIC FROM THE DIRECTOR (continued from page 1)

Our work, however, is far from done. As the recent disasters wrought in the United States by Hurricanes Katrina and Rita at test, the public is all too quick to blame “en gineers” when there are infrastructure fail ures (and to exaggerate those failures—see our blackout retraction below). Rather they should appreciate what engineers have made possible, if only societies would apply their inventions more wisely. We will there fore continue to carry out our mission en thusiastically. Let me then take yet another opportunity to thank you, our supporters, who make the Center’s work possible. And let me wish you and yours a safe, healthy, and happy holiday season and new year.

HISTORY CENTER STAFF TO LECTURE AT HILLSBOROUGH HIGH SCHOOL

As readers of this newsletter know, a key task of the IEEE History Center is to promote the appreciation of the role of technology and engineering in society, past and present. Previously, IEEE as a whole – and the History Center in particular – has worked within pre-university science education to help achieve these goals. Pre-university educational standards being promulgated in the United States, as well as those which already exist in some nations, often include aspects of the social and historical appreciation of science and technology.

THROUGH THE IEEE VIRTUAL MUSEUM, WE HAVE WORKED TO PROVIDE EDUCATORS THE TOOLS THEY NEED TO ADDRESS THESE STANDARDS APPROPRIATELY.

What our readers may not realize is that social studies and history standards that are being promulgated in the United States and elsewhere also explicitly include references to the role of technology in history. It turns out that many social studies teachers are even less comfortable talking about technology than science teachers are in discussing history. That is where the IEEE History Center can come in as experts in the history and philosophy of science.

THE IEEE HISTORY CENTER NEWSLETTER ADVERTISING RATES

The newsletter of the IEEE History Center is published three times per annum with a circulation of 10,700 of whom approximately 7,100 reside in the United States. The newsletter reaches engineers, retired engineers, researchers, archivists, and curators interested specifically in the history of electrical, electronics, and computing, and engineering, and the history of related technologies.

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Please submit camera-ready copy via mail or email attachment to ieee-history@ieee.org. Deadlines for receipt of ad copy are 2 February, 2 June, 2 October. For more information, contact Robert Colburn at rcolburn@ieee.org.
Spying from Space is a disciplined and detailed history of the Air Force Satellite Control Facility (AFSCF) and the Corona satellite system. This historical perspective from the early 1960s focuses on the various programs and efforts that led to the development of a comprehensive system for monitoring the ground support of the nation's space-based intelligence gathering. The book highlights the role of the AFSCF in managing and operating the AFSCF-controlled satellites, and its contributions to the overall U.S. space intelligence program. The book also discusses the various technical challenges and innovations that were necessary to develop and maintain the system's capabilities. Through a combination of primary source materials, interviews with AFSCF personnel, and detailed technical analysis, the authors provide a comprehensive account of the development of the AFSCF and its role in the overall U.S. space intelligence program.
IEEE HISTORY CENTER

2005-2006 GRADUATE ASSISTANTS

in History from the University of Massachusetts, Amherst. He is interested in U.S. social and political history, the history of medicine, the history of race, and global history. He is writing his dissertation on the origins of narcotic control before World War I. He is a co-author, with former IEEE History Center Research Historian David Morton, of Electronic: The Life Story of a Technology.

IEEE LIFE MEMBERS PRIZE PAPER AWARDED TO RICHARD HIRSH

The committee chose Marie Villefranche as a Ph.D. history student at Rutgers University. She was born in Port-au-Prince, Haiti. She earned her B.A. in history and Anthropology at CUNY Hunter College. At Rutgers, Marie majors in the African Diaspora and minors in African-American history. She is interested in the interactions of Francophone Africans, Francophone Caribbean and African-Americans in Paris and their manipulations of ideas/myth of “egalitarian” France during the 1930s and 1940s.

MYSTERY PHOTO CHALLENGE #18

The committee for the IEEE Life Members Prize is pleased to award the prize for 2005 to Richard Hirsh for his article, “Power Struggle: Changing Momentum in the Restructured American Electric Utility System.” The committee chose the article as a well-researched, elegantly written, and wide-ranging account of the restructuring of the U.S. electric power industry since the 1970s. Hirsh weaves together the social, political, and technical aspects of utility deregulation. Drawing on the work of Thomas Hughes, Hirsh uses the concepts of momentum and closure of large systems to bring together these strands and to make a major contribution to our field’s ongoing debate about technological determinism. He shows how policymakers and the public can change the seemingly unalterable trajectory of a large-scale technological system.

Richard Hirsh is a professor of History of Technology and Science & Technology Studies at Virginia Tech. He holds an undergraduate degree in history, a Master’s degree in Physics and a Ph.D. in History of Science from the University of Wisconsin. He was a historian for the National Aeronautics and Space Administration, and a research fellow at the Smithsonian Institution’s National Air and Space Museum.


BANKEN FELLOWSHIPS AND GRANTS

By John Zemkoski, LM and Trustee - Edison Museum

Menlo Park, New Jersey is where Thomas Alva Edison developed the technologies that changed the world. Nicknamed the “Wizard of Menlo Park”, he resided and worked there from 1876 to 1884. Major historic milestones that occurred there include:

- Establishment of the first organized industrial research lab in the world 1876
- Invention of the phonograph in 1877 making Menlo Park the "Birthplace of Recorded Sound"
- Demonstration of the first practical incandescent light bulb in 1879
- The first use of incandescent lights for street lighting – New Years Eve 1879
- Invention of the carbon button transmitter for the telephone - the phone was "Held" by Edison by 1880
- Construction of the first electric railroad in the U.S.
- Development of the first electric distribution system

For decades, the Menlo Park site had suffered from benign neglect. The present aged museum building is inadequate for housing the numerous Edison artifacts and memorabilia, and it cannot accommodate large groups of visitors which number approximately 15,000 per year. The one-hundred thirty foot high copper clad Memorial Tower, which boasts the "world’s largest light bulb" was built in 1938 on the exact location of Edison’s original laboratory. The tower, which is a National Historic Landmark, is deteriorating.

However, the future looks promising. During the last few years a curator was hired, a Board of Trustees was established and the site was granted 501(c)-3 non-profit status allowing the board to solicit private funding. Through the efforts of the trustees and State legislators, the State has initially granted approximately $650,000 to the site to build a new museum. The building process will start with an historic site survey and architectural design. A ground-breaking for the new museum is expected in the spring of 2006. While this is occurring, the trustees will focus on fund raising from private sources, individuals, foundations, and corporations. For example, as a result of the sale of a coin commemorating the 125th anniversary of the incandescent light bulb, the U.S. Mint has designated $379,000 for the site if private matching funds can be obtained by February 2006. Thus, there is urgency to achieve matching funds from the private sector.

At the present, the trustees are working with the IEEE History Center and the IEEE Princeton/Center Jersey Section to establish an IEEE Milestone for one of the many inventions associated with the site. In addition, after a design plan for the museum has been developed, the trustees plan to submit proposals to the IEEE Foundation and the Life Member’s Committee for support of an educational project or museum display. Another opportunity to work together is the 2007 anniversary celebration of the Pearl St. station.

After the museum has been established, the attention of the trustees will turn to the Edison Memorial Tower which will require significantly more funds to restore it to its original condition. Learn more about the Menlo Park site, the web site is www.MenloParkMuseum.com.
CHRISTOPHER MCGAHEY IS 2005-2006 LIFE MEMBERS FELLOW IN ELECTRICAL HISTORY

The IEEE History Committee has selected Christopher McGahey as the 2005-2006 Life Members Fellow in Electrical History. McGahey is a Ph.D. student in the History and Sociology of Technology and Science at Georgia Institute of Technology, Atlanta, Georgia. He earned his B.S. in electrical and computer engineering from Georgia Institute of Technology, and his M.S. in electrical and computer engineering from University of Illinois at Urbana-Champaign.

McGaheny’s research is on the history of the U.S. quartz crystal industry from 1918 to 1958. He has been the historian of the IEEE Atlanta Section since October 2003.

The IEEE Fellowship in Electrical History supports either one year of full-time graduate work in the history of electrical science and technology at a college or university of recognized standing, or up to one year of post-doctoral research for a scholar in this field who has received their Ph.D. within the past three years. The stipend is U.S. $17,000, and a research budget of U.S. $3,000 is available. The IEEE Fellowship in Electrical History is administered by the IEEE History Committee and sponsored by the IEEE Life Members Committee. Following is research the Fellowship has supported:

PAST FELLOWS AND THEIR TOPICS

1979 Ronald Kline
1980 W Bernard Carlson
1981 Robert Rosenberger
1982 No Award
1983 Lawrence Owens
1984 Andrew Butrica
1985 Paul Israel
1986 Jonathan Coopersmith
1987 Nelson Kellogg
1988 Michael Gander
1989 Joel Gooday
1990 Mark Henry Clark
1991 Gabrielle Hecht
1992 Sungook Hong
1993 Mary Ann Hellriegel
1994 Ross Bassett
1995 David Morton
1996 Christopher Leviser
1997 Andrew Robertson
1997 Aristotel Tympos
1998 Gary Frost
1999 Atsushi Akera
2000 Thomas Haigh
2001 Cyrus Mody
2002 Timothy Wolters
2003 Leslie Berlin
2004 Chen-Pang Yang

IEEE LIFE MEMBERS PRIZE PAPER AWARDED TO RICHARD HIRSH

The telegraph flourished for more than a hundred years, producing hundreds of memorable telegraph messages. Schoolchildren used to learn about Samuel Morse’s 1844 “What hath God wrought” and about the Ems dispatch, the Kruger telegram, and the Zimmermann telegram (associated with the Franco-Prussian War, the Boer War, and World War I, respectively). Anyone studying Latin is still likely to be told of General Charles Napier’s one-word telegram after annexing the province of Sind to British India. “Peccavi” (Latin for “I have sinned”), there is the famous exchange between George Bernard Shaw and Winston Churchill. “Am sending two tickets for first night. Bring friend if you have one.” “Regret cannot come to first night. Will come to second night if you have one.” The writer Robert Benchley, on assignment to Venice for the first time, telegraphed back to his editor, “Streets flooded. Please advise.”

Telegrams have played important parts in countless movies. A crucial event in the Gene Kelly – Judy Garland movie “For Me and My Gal” (1942) is a telegraph clerk’s error, turning ‘Palace Newark’ into ‘Palace New York’ (which meant that “playing the Palace” was not quite so prestigious). Also in that world War I movie is a telegram informing of a death in action. Noel Coward’s “In Which We Serve” (1942) shows the painful task of delivering such telegrams in World War II, and “We Were Soldiers” (2002) the same thing for the Vietnam War (where the Western Union telegram was delivered by a taxi driver). Even outside of wartime, telegrams often meant the death of a relative. In “Funny Girl” (1966), the story of Fanny Brice, a Western Union man bicycles up a Lower East Side street, exclaiming the comment “That’s life for you – somebody’s dead.”

Even if less expensive than a long-distance call, the cost of a telegram was not quite so prestigious (and even if the “Palace” telegram fell off rapidly in midcentury, it continued to be used when a long-distance call was thought to be too expensive, as occasionally happened for first night. Bring friend if you have one.” “Regret cannot come to first night. Will come to second night if you have one.” The writer Robert Benchley, on assignment to Venice for the first time, telegraphed back to his editor, “Streets flooded. Please advise.”

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Though the telephone cut into the telegraph business, there were times when a record of the communication was needed, as with the police telegram in “Spellbound” (1945), or when a long-distance call was thought to be too expensive, as occurred in “The Lady Eve” (1941). Even if less expensive than a long-distance call, the cost of a telegram was not quite so prestigious. Even if less expensive than a long-distance call, the cost of a telegram was not quite so prestigious. Even if less expensive than a long-distance call, the cost of a telegram was not quite so prestigious.
WALLACE READ BACKS THE IEEE VIRTUAL MUSEUM

By Karen Galuchie, IEEE Development Office

When Wallace S. Read learned that he had been selected as the 2005 recipient of the IEEE Charles Proteus Steinmetz Award, he took great pleasure in refusing the cash award in favor of donating it to two of his favorite IEEE units. The IEEE History Center, specifically the IEEE Virtual Museum (VM), is one of the two beneficiaries of Dr. Read’s generosity. The VM will receive U.S. $5,000 in much needed support to continue its work to present Web-based exhibits in a non-intimidating way that explore how technology works and explain how these technologies have shaped the world in which we live.

As Chair of the Trustees of the IEEE History Center, Dr. Read is intimately aware of the work of the Center. He is quite proud of their efforts and views the IEEE Virtual Museum as an excellent outreach tool. He says, “The IEEE Virtual Museum has won numerous awards and has proven itself as one of the top web pages in North America. It is reaching our youth at a time when they need guidance as they select their career path. I like backing winners and those credentials are enough for me to hope that my small donation will help keep it alive.”

Wallace S. Read is the president of Read Management Advisory Services, Inc., St. Johns, Newfoundland, Canada. He is an IEEE Life Fellow and served as the IEEE president in 1996. His many honors include the IEEE Standards Association International Award, IEEE PES’s Power-Light Award, and the Order of Canada.

Dr. Read will receive the 2005 IEEE Charles Proteus Steinmetz Award, which recognizes exceptional contributions to the development of standards in electrical and electronics engineering, during the IEEE Standards Association Award Ceremony in December 2005. The prize honors him for sustained leadership in organizing IEEE standards activities to be responsive to industry and the global marketplace. In addition to the U.S. $10,000 cash honorarium Dr. Read decided to donate, the other prize items he will receive include a bronze medal and certificate.

To join Wallace (Wally) Read in backing the IEEE Virtual Museum, simply make a gift using the business reply envelope included in this newsletter.

SUPPORT 2006-2007


The IEEE History Center offers three different programs of support annually for scholars pursuing the history of electrical engineering and computing: An internship for an advanced undergraduate, graduate student, or recent Ph.D.; a dissertation fellowship for an advanced graduate student or recent Ph.D.; and a post-doctoral Fellowship for a recent Ph.D. The internship and the dissertation fellowship are funded by the IEEE Life Members Committee; the post-doc is funded by Rutgers University.

IEEE FELLOWSHIP IN ELECTRICAL HISTORY ACADEMIC YEAR 2006/2007

The IEEE Fellowship in Electrical History supports either one year of full-time graduate work in the history of electrical science and technology at a college or university of recognized standing, or up to one year of post-doctoral research for a scholar in this field who has received his Ph.D. within the past three years. This award is supported by the IEEE Life Members Committee. The stipend is $17,000, with a research budget of $5,000.

Candidates with undergraduate degrees in engineering, the sciences, or the humanities are eligible for the fellowship. For pre-doctoral applicants, however, the award is conditional upon acceptance of the candidate into an appropriate graduate program in history at a school of recognized standing. In addition, pre-doctoral recipients may not hold or subsequently receive other fellowships, but they may earn up to $5,000 for work that is directly related to their graduate studies. Pre-doctoral fellows must pursue full-time graduate work and evidence of satisfactory academic performance is required. These restrictions do not apply to post-doctoral applicants.

The Fellow is selected on the basis of the candidate’s potential for pursuing research in, and contributing to, electrical history. Application forms are available on-line at http://www.ieee.org/organizations/history_center/fellowship.html. The deadline for completed applications is 15 February 2006. This completed application packet should be sent to the Chair of the IEEE History Center, Rutgers, The State University of New Jersey, 39 Union Street, New Brunswick, NJ 08901-8538. Applicants will be notified of the results by 1 June 2006.

The IEEE Fellowship in Electrical Engineering History is administered by the IEEE History Committee and supported by the IEEE Life Members Committee.

IEEE HISTORY CENTER INTERNSHIP—2006

Scholars at the beginning of their career studying the history of electrical technology and computing are invited to contact the Center to be considered for a paid internship at the Center’s offices on the Rutgers University campus in New Brunswick, New Jersey.

The intern program seeks to provide research experience for graduate students in the history of electrical and computer technologies, while enlisting the help of promising young scholars for the Center’s projects. The Intern generally works full-time for two months on the History Center on a Center project that is connected to his or her own area of interest. This time is usually during the summer, but other arrangements can be considered. Interns are expected to consult with the Center’s staff and its associates, and guided to research resources in the area. The Internship is designed for those near the beginning or middle of their graduate careers, but advanced undergraduates, advanced graduates, and, on rare occasions, recent Ph.Ds will also be considered. Special consideration is often given to scholars from outside the United States who might not otherwise have an opportunity to visit historical resources in this country.

The stipend paid to the intern is US $3,500, but additional funds may be available to defray travel costs, depending on the Intern’s circumstances. This Internship is supported by the IEEE Life Members Committee.

There is no formal application form. To apply, please mail a curriculum vitae showing your studies in electrical history along with a cover letter describing the sort of project you would be interested in doing (see contact information below). The deadline for contacting the IEEE History Center is 1 March 2006.

POST-DOCTORAL FELLOWSHIP IN ELECTRICAL HISTORY ACADEMIC YEAR 2006/2007

The History Department and the IEEE History Center of Rutgers University announce a post-doctoral position for one year, renewable up to three additional years, in the history of electrical engineering and computing, beginning Fall 2006.

The post-doc will participate in the IEEE History Center’s program of preserving, researching and promoting the history of electrical engineering and computing and will be expected to conduct original research in related topics. In addition, the post-doc will teach undergraduate courses in the area of the history of technology for the History Department, typically one or two courses per year, and will participate broadly in the intellectual life of the Department, a top-rated program which features a new graduate major field in the history of technology, the environment, and health.

Candidates must hold a Ph.D. in the history of technology or a related field, and must demonstrate the potential to conduct professional-quality scholarship in the history of electrical or computer technologies, broadly defined. Teaching experience and a background in communicating with engineers or non-academic audience are all desirable.

Applicants should submit a letter of interest, including a description of areas of research interest, curriculum vitae, writing sample (article or dissertation chapter), and three letters of recommendation. The deadline for completed applications is 1 April 2006.

IEEE and Rutgers are AA/EEO employers. Women and minorities are encouraged to apply for all positions.

The IEEE History Center is cosponsored by the Institute of Electrical and Electronics Engineers, Inc. (IEEE)—the world’s largest professional technical society—and, Rutgers, The State University of New Jersey. The mission of the Center is to preserve, research, and promote the legacy of electrical engineering and computing. The Center can be contacted at: IEEE History Center, Rutgers University, 39 Union Street, New Brunswick, NJ 08901-8538. Applicants are encouraged to apply for all positions.

http://www.ieee.org/history_center