IEEE History Center

The prototype of the Pennsylvania Railroad's mighty GG1 locomotives shown here at Washington, DC's Union Station in 1935. This is just one of the many images in the Ellenberger Collection, part of the IEEE History Center's image archive (see page 5).

RUTGERS
THE STATE UNIVERSITY
OF NEW JERSEY

STATIC FROM THE DIRECTOR

This is the annual issue where we express our gratitude to you, our donors, for your ongoing support that enables the IEEE History Center to carry out its programs. As you can see, the issue is packed full with the list of donors and with descriptions about those programs, so I want to keep my column short. So let me add my personal thanks to the recognitions in this issue. I want to point out three specific events. I had an opportunity in January to visit with some of our donors in Austin, Texas, to thank them in person and to get their input on our programs. I was very heartened by the positive feedback that I received. In addition, the IEEE Foundation has a recognition program for supporters who go above and beyond the call of duty in supporting the Foundation's efforts to cultivate relationships and resources to advance the IEEE core purpose to foster technological innovation and excellence for the benefit of humanity. One such person is Emerson Pugh, past president of IEEE and past chair of the IEEE History Center, whose philanthropic efforts have focused on the History Center. We therefore had the opportunity to join with the IEEE History Committee to recognize—on behalf of the Foundation — Emerson's efforts. The event is reported in full on page 3.

Finally, I would like to note that there are non-monetary forms of support as well. On 2 February, I had the honor to address the IEEE Washington and Northern Virginia Sections, and to receive from them a plaque recognizing the assistance that we gave them in preserving and promoting the history of the Washington Section. In the IEEE 125th anniversary of year of 2009, the Washington section decide to make a

SUBSCRIPTION INFORMATION

The IEEE History Center newsletter is available free to all persons interested in technological history – whether engineers, scholars, researchers, hobbyists, or interested members of the public. It is published in hard copy in March, and in electronic form in July and November of each year.

To subscribe to the IEEE History Center's free newsletter, please send your name, postal mailing address, e-mail address (optional if you wish to receive the electronic versions), and IEEE member number (if applicable – non-members are encouraged to subscribe as well) to **ieee-history@ieee.org**

Current and past issues of the newsletter can be accessed at: **www.ieee.org/about/history_center/newsletters.html**

The IEEE History Center is a non-profit organization which relies on your support to preserve, research, and promote the legacy of electrical engineering and computing. To support the Center's projects – such as the Global History Network, Milestones, and Oral History Collection, please click the "Donate Online" tab at **www.ieee.org/donate** or **http://www.ieeefoundation.org/**

NEWSLETTER SUBMISSION BOX

The IEEE History Center Newsletter welcomes submissions of Letters to the Editor, as well as articles for its "Reminiscences" and "Relic Hunting" departments. "Reminiscences" are accounts of history of a technology from the point of view of someone who worked in the technical area or was closely connected to someone who was. They may be narrated either in the first person or third person. "Relic Hunting" are accounts of finding or tracking down tangible pieces of electrical history in interesting or unsuspected places (in situ and still operating is of particular interest). Length: 500-1200 words. Submit to **ieee-history@ieee.org**. Articles and letters to the editor may be edited for style or length.

THE IEEE HISTORY CENTER NEWSLETTER ADVERTISING RATES

The newsletter of the IEEE History Center is published three times per annum; one issue (March) in paper, the other two (July and November) electronically. The circulation of the paper issue is 4,800; the circulation of the electronic issues is 22,500. The newsletter reaches engineers, retired engineers, researchers, archivists, and curators interested specifically in the history of electrical, electronics, and computing engineering, and the history of related technologies.

	Cost Per Issue
Quarter Page	$150
Half Page	$200
Full Page	$250

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 **r.colburn@ieee.org**.

concerted effort in the history area, and we worked closely with them to produce the most complete Section history on the IEEE Global History Network (**http://www.ieeeghn.org/wiki/index. php/IEEE_Washington_DC._Section_History**), and to digitize and store their archival material there (**http://www.ieeeghn.org/ wiki/index.php/Archives:Washington_D.C._Section_Archives**). In addition to that the two Sections worked together to produce a time capsule of their IEEE activities. As part of the ceremonies I accepted stewardship of the capsule in our archives for thirty-three years. Their plan is to open the capsule during the IEEE sesquicentennial in 2034 (see opposite).

Actually, it is we at the History Center who are grateful to them for their efforts. Our JOB is to preserve and disseminate information about IEEE, its members, their professions, and related activities. These enthusiastic members volunteered the precious free time to join us in our mission. I hope that other Sections continue to follow suit!

CITATION FROM IEEE WASHINGTON SECTION
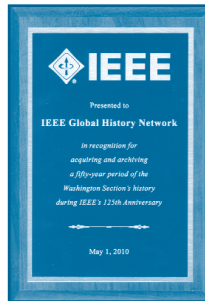
The IEEE Washington Section Outstanding Achievement Award, is hereby presented to the director of the IEEE History Center for outstanding contributions to the collection and preservation of fifty years of Washington Section's history in conjunction with IEEE's 125th anniversary. The actions of your superb IEEE historians in documenting and illustrating the section's extensive history via the Global History Network far exceeded all expectations of the officers and members of the Washington Section.

Therefore, in view of these findings, we hold their actions to be in keeping with the finest traditions of IEEE and reflect great credit upon themselves, the IEEE History Center, and IEEE. Given under my hand in the City of Washington, this first day of May, two-thousand and ten. Signed Timothy Weil, Chair, Washington Section, IEEE

HISTORY COMMITTEE ACTIVITIES

IEEE FOUNDATION RECOGNIZES EMERSON PUGH AT THE TESLA LEVEL

At its November planning session, the IEEE History Committee began by recognizing Emerson Pugh for his major philanthropic efforts to the IEEE Foundation, and especially on behalf of the historical activities of IEEE. History Committee Chair Michael Williams presented Emerson Pugh with a bound certificate as a member of the charter class of 2010 to join the IEEE Heritage Circle -- the cumulative giving program of the IEEE Foundation which recognizes those donors who have given consistently throughout their career and lifetime. For his continued support, Pugh was recognized at the Nikola Tesla cumulative giving level

and was also recognized as 'Forever Generous' as an IEEE Goldsmith Legacy League member. Named for Alfred N. and Gertrude Goldsmith in recognition of their extraordinary commitment to IEEE, it is the planned giving donor recognition group of IEEE and IEEE Foundation.

In addition to being the 1989 IEEE President, Pugh served as the President of the IEEE Foundation from 2000 to 2004, and has been a long-time member of the IEEE History Committee, including served as chair. He currently chairs the STARS (Significant Technological Achievement Recognition Selections) Editorial Board.

120 ATTENDEES AT HISTELCON 2010

By Jacob Baal-Schem, *Region 8 LM & History activities coordinator*

HISTELCON 2010, the second Region 8 Conference on the History of Electrotechnology was held in Madrid, Spain on 3-5 November 2010, on the theme of "A Century of Broadcasting". The Conference, organized by the IEEE Spain Section in cooperation with the Spanish Society on the History of Science and Technology had a strong support of "Telefonica", the Spanish communications company and collaboration of many technical and Media partners.

Out of 85 technical papers received, 60 papers were presented during 12 Sessions to an attendance of 120 participants,

preceded by greetings by Region 8 Director Josef Modelski and by a keynote lecture on "The Origins of Radio Broadcasting" by Dr. Tapan K. Sarkar and finalized by the launching of HISTELCON 2012. All were held at the prestigious Auditorium Room provided by Telefonica. The presentations covered Broadcasting activities in Italy, Cuba, Turkey, Israel, Brazil, Africa, Cyprus, US, UK, Thailand , Russia, Croatia, Portugal and Japan, as well as developments inside Spain. Special sessions dealt with Pioneers of Electro-Technology and with Stellar Moments in the History of Broadcasting.

The Conference attendees were received and greeted by the Deputy Mayor of the City of Madrid, Ms. Ana Botella Serrano and visited the Spanish Institute of Radio and Television, to learn about the Digitalization Process of Audio and Video Archives.

Conference Chair, Olga Pérez Sanjuán, of AEIT, Spain and Technical Program Chair, Antonio Pérez Yuste, of UPM, Spain, set up an excellent program, including the Welcome Cocktail Reception at Madrid's Old City Hall, the Gala Dinner at the Real Gran Pena Restaurant and terminated by a Guided tour through the charming streets and plazas of Madrid Old Town.

All participants felt the excellent atmosphere that reigned during the three days of the Conference and many friendships and much professional cooperation resulted from this event.

HISTELCON 2010 set a very high standard for HISTELCON 2012, which will be held in Pavia, Italy in September 2012.

TOP SECRET ROSIES
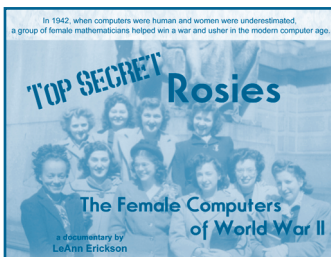
In 2007, the IEEE Foundation awarded US $10,000 to Dr. LeAnn Erickson as partial support to create a documentary called "Top Secret Rosies: The Female Computers of WWII." Dr. Erickson is both an independent video/filmmaker and an associate professor of film and media arts at Temple University in Philadelphia. Her work has appeared on public television, in galleries, and has won national and international recognition in video/film festivals. This documentary was developed to inform the general public about the story of the 1942 secret U.S. military program to recruit college-educated female mathematicians who would become human 'computers' for the US military, and ultimately participate in the development of one of the first electronic computers, the ENIAC. As part of her interaction with the IEEE Foundation, Dr. Erickson was put in touch with the History Center, which consulted on her film. As a result, when the film was completed in 2010, the History Center was chosen as one of the premier screening sites. Dr. Erickson had obtained an additional grant from the American Association of University Women to tour the film, before making it available for airing by PBS affiliate stations around the United States.

In a rare academic show of cross-disciplinary cooperation, the screening at Rutgers University was co-sponsored by the IEEE History Center, the Visual Arts Department (part of Rutgers Mason Gross School for the Arts), and the Computer Science Department. On 30 November about 60 people from across Rutgers and the local community attended a reception, viewed the film and participated in a question and answer session with Dr. Erickson. The event was extremely enjoyable, and the film is definitely worth seeing and of interest to the readers of this newsletter. Dr. Erickson maintains a website for the film (**http://www.topsecretrosies.com/Top_Secret_Rosies/Home.html**) and the site includes information about broadcast schedules and about how to order the DVD for those who are unable to catch it on television.

IEEE HISTORY CENTER PARTICIPATES IN NATIONAL SCIENCE & ENGINEERING FESTIVAL

From 10-24 October, 2010, the United States held its first ever National Science & Engineering Festival (see **http://www.usa-sciencefestival.org/**). Sponsored by dozens of government agencies, corporations and nonprofit organizations, the festival culminated in an expo on the national mall on the weekend of 23-24 October.

Led by Dusty Fisher and a team of dedicated volunteers from its Pre-College Education Committee (PEC), and with the active engagement of IEEE-USA president Evelyn Hirt and local IEEE volunteers, IEEE-USA was a successful participant in this event. As part of IEEE's educational and public visibility imperatives, the popular IEEE-USA booth featured a demonstration of energy efficiency and visitors were attracted by flashing LEDs and a helium-inflated model blimp. Smart tags flew under the blimp—if a visitor scanned them with a special app on their smartphone, he or she would be taken to the IEEE-USA PEC landing page (**http://www.ieeeusa.org/volunteers/committees/pec/**). The booth's theme was "Math and Science: Your Future," and the volunteers handed out bookmarks featuring **tryengineering.org**, **tryscience.org**, **trynano.org** and, of course, **IEEE.org**.

In addition, IEEE-USA was one of ten groups participating in a National Engineers Week Foundation effort to further promote engineering careers. Interested families could get a "passport" and, by visiting five booths and getting five stamps, could receive a prize. IEEE-USA designed two unique stamps for the occasion.

The IEEE History Center participated in IEEE-USA's efforts by supplying background information and two banners from the History Center's now famous "IEEE Was Here" campaign (see page 6), one showing the lunar rover and the other an early Arctic radar installation. In this way we helped reinforce the message that engineering is "cool" and important by showing that, throughout recent history, when cool and important things happened, engineers were there…and that those engineers were and are likely to be IEEE members. A good time was had by all…kudos to the IEEE-USA team!

ELLENBERGER PHOTOGRAPHS ADDED TO ARCHIVES

IEEE History Center Graduate Assistant Steven McGrail has been busy scanning the photographs from the William J. Ellenberger collection and adding them to the Center's photograph archive. Ellenberger began his career as an engineer at the Potomac Electric Power Company, which was a subsidiary of the Washington Railway and Electric Company, in Washington, DC in 1928. Through his long career, which included being the Plant Superintendent at the original National Bureau of Standards building, Ellenberger documented his experiences and took many photographs of power

William Ellenberger in the 1930's

plants, electrical distribution equipment, and electric mainline and streetcar railroads. Beginning in the 1980s, Ellenberger began donating his photographs to the IEEE History Center. By scanning the photographs, IEEE History Staff will be able to preserve them and make them available for study by scholars and researchers.

PSE&G's Roseland, New Jersey Switching Station

AN UPGRADE FOR THE IEEE ARCHIVES

When IEEE Archivist and Institutional Historian Sheldon Hochheiser surveyed the IEEE Archives after joining the IEEE History Center in mid-2008, he discovered that it was difficult to locate material in the collection, or even be certain in some cases what material the archives held. This was in large part because of the database in which the collection was cataloged. While perhaps state-of-the art when it was adopted in the early 1990s, it was woefully obsolete by current standards. Only a designated keyword field could be searched, and electronic records, including the center's collection of digitized photographs, could not be included as part of the record. He recommended that a new database be selected and purchased and a project archivist be engaged to check each record against the actual item after the data was migrated. In addition, he found that the archives held a collection of 43 reels of microfilm of important documents, largely from IEEE's predecessor institutes, IRE and AIEE. Among the records were sets of both organizations' annual membership directories. These documents were inaccessible, because neither the archives nor anyone else at the IEEE Operations Center had a reader that could display the microfilm.

The History Center applied for and received a grant from the IEEE Foundation which provided the funds to solve the problems. With the grant in hand, the center, in conjunction with IEEE IT, selected a new database product, Past Perfect, from several commercially available databases designed for archives, and arranged for Past Perfect to migrate our data. The center then hired a Project Archivist, Jason Sylvestre, formerly of the Hagley Library in Wilmington, Delaware, one of the largest archives for history of business and technology in the United States. Sylvestre spent six months going through every individual entry, correcting the data, checking the record against the actual material, attaching digitized photos to corresponding records, and reducing the unwieldy 9000 word keyword index transferred from the old database to a useful list of 1500 subjects. After six months work, he had essentially recataloged the collection. A second vendor digitized the microfilm, making the material available as digital files. These files are currently being added as electronic records to the Past Perfect database.

Center staff are actively using the new system to more efficiently do their jobs, including filling reference requests, researching IEEE's history, cataloging new material, and identifying archival material for posting and dissemination on the IEEE Global History Network.

The IEEE Foundation relies on donations to award grants to charitable organizations with new and innovative projects in support of educational, humanitarian, historical preservation, and peer recognition programs of IEEE. To make a donation to support the History Center, visit **www.ieee.org/donate** and direct your donations to the History Center Fund.

GUEST LECTURES ON ENGINEERING HISTORY AT HILLSBOROUGH HIGH SCHOOL

Even as the History Center seeks to impact pre-university history of technology education more broadly through the IEEE Global History Network, the Center has continued its four-year-old relationship with Hillsborough High School, a local New Jersey institution. There we can test in the trenches some of our ideas and content in this realm. On 8 and 9 December, History Center Outreach Historian John Vardalas gave a guest lecture to a series of classes focused on exploration, Ferdinand Magellan, and the technologies that made European exploration and expansion possible in the early modern period. On 23 and 24 February, Staff Director Michael Geselowitz gave a set of guest lectures on the topic of skyscrapers and their enabling technologies, such as electric elevators and air conditioning. All of the lectures were well received, and plans are in the works for Senior Research Historian Rik Nebeker to present lectures in the late spring on household appliances.

IEEE MILESTONES IN ELECTRICAL ENGINEERING AND COMPUTING APPROVED

The IEEE Board of Directors has approved the following IEEE Milestones in Electrical Engineering and Computing. Where the dedication ceremony dates have been scheduled, they are given, and the Region(s) where the milestone plaque is located is given in parentheses. The detailed nomination of each milestone (including the history of the achievement) can be found on the IEEE Global History Network (please click on the IEEE Milestones tab at the top of the GHN page) or at **http://www.ieeeghn.org/wiki/index.php?title=Special%3AAllpages&from=&namespace=106**. Readers can also find a list of all milestones which have been dedicated at: **http://www.ieeeghn.org/wiki/index.php/Milestones:List_of_IEEE_Milestones**. In addition to celebrating and publicizing the heritage of IEEE technologies, the Milestone dedications offer a unique opportunity to document these technical achievements and make their history available on-line via the Global History Network.

Milestones approved since last issue of the newsletter:

Eel River HVDC Converter 24 February 2011 (R7)

First Reliable HV Fuse (R4)

Discovery of Superconductivity 8 April 2011 (R8)

Marconi's First Wireless Experiments, 1894-95 29 April 2011 (R8)

Bose Millimeter-wave Experiments in Radio (R10)

Mercury Spacecraft Controls 20 February 2011 (R5)

SPICE Circuit Simulation Program 20 February 2011 (R6)

Pearl Street Station (R1)

Looking back at the year 2010, which was a very successful year for the IEEE Milestones Program, there were eleven dedication ceremonies held:

Discovery of Radioconduction (Branly Coherer) 23 September 2010 (R8)

Star of Laufenburg Interconnection 18 August 2010 (R8)

Kurobe River #4 Hydropower Plant, 9 April 2010 (R10)

Commercialization and Industrialization of Photovoltaic Cells, 9 April 2010 (R10)

Invention of Public-key Cryptography by GCHQ 5 October 2010 (R8)

First 16-bit Monolithic DAC that Enabled the CD Player, 6 December 2010 (R5)

TIROS Satellite 27 September 2010 (R1)

Demonstration of the Working Laser 23 November 2010 (R6)

TRIUMF Cyclotron 16 December 2010 (R7)

First TV Broadcast in Western Canada 2-7 November 2010 (R7)

Radio Astronomy Using VLBI 25 September 2010 (R7)

MIT

This year marks the 150th anniversary of the founding of the Massachusetts Institute of Technology (MIT). Although one hates to pick favorites, it may be safe to say that no other single educational institution has been as interwoven through history with IEEE's fields of interest as MIT has. The History Center recently published a piece in IEEE-USA's Today's Engineer on the institutional relationships between IEEE and MIT, which can be read at **http://www.todaysengineer.org/2011/Jan/history.asp**. This issue of the History Center newsletter also contains a review of a biography of MIT's founder, William Barton Rogers (see page 9). MIT has arranged a year-long set of activities, so readers are encouraged to visit their special sesquicentennial site at **http://mit150.mit.edu/**.

SURF CITY

A selection of sites which IEEE History Center staff have come across in the course of their work, and which might be of interest to our readers:

http://americanhistory.si.edu/cobol The Smithsonian's National Museum of American History's recently-launched site related to the early history of the programming language COBOL on the 50th anniversary of the first successful compatibility test of COBOL programs.

http://vpri.org/pov An anthology of essays from giants of the computer science field, written for the occasion of Alan Kay's 70th birthday last year.

http://mit150.mit.edu A site devoted to the Massachusetts Institute of Technology's sesquicentennial celebrations

CriMiCo 2011 CONFERENCE ANNOUNCEMENT

КрыМиКо 2011 CriMiCo

Crimean International Microwave Conference (CriMiCo) is the recognized international forum that covers many problems regarding theory and practice of microwave systems application. At the 20th conference that took place in Sevastopol on 13—17 September 2010, 541 papers were presented by specialists from 207 universities from Belarus, Brazil, Bosnia and Herzegovina, Germany, Israel, Kazakhstan, Canada, China, Korea, Lithuania, Moldova, Netherlands, Poland, Russia, USA, Ukraine and South Africa at two plenary and 38 technical sessions.

Since 1999 the Conference Proceedings are indexed by respected abstract databases, such as INSPEC, Google Scholar, Thomson ISI, SCOPUS. Full version of the Proceedings is located at IEEE Xplore.

Topics include: Basic history of microwave and radioengineering research, trends and projects in the field of microwave and radio-engineering research, activity of scientists, universities, companies and teams in the field of microwave and radioengineering research; Regional history in the field of microwave and radioengineering research, methodological aspects of history in the field of microwave and radioengineering research.

The Conference will be held on **September 12—16, 2011**.

OFFICIAL LANGUAGES OF THE CONFERENCE ARE RUSSIAN AND ENGLISH

The deadline for submission of camera-ready papers is May 20, 2011. Visit our web-sites at **http://www.crimico.org** or send e-mail to: **crimico.org@gmail.com** for further information regarding papers submission and subsequent correspondence.

EE IN THE MOVIES

ELECTRICAL TECHNOLOGIES IN THE MOVIES: TELEVISION

Television was demonstrated at the 1939 New York World's Fair, but it was only after World War II that television broadcasting became established in the United States. In the late 1940s interest surged. Twenty percent of households had a TV set in 1950, 50 percent in 1955. Movies were quick to show the important place television assumed in American life.

For most filmmakers, television was an unwelcome rival to their medium, so it is not surprising that movies often depicted television quite negatively. In the 1955 movie "All that Heaven Allows", a lonely woman is given a television as a Christmas gift. When she is told "turn that dial and you have all the company you want right there on the screen", the audience senses that she will be even lonelier. The main character in the 1960 movie "The Apartment" changes channels to avoid commercials, then gives up on TV because of the commercials. The quality of TV programming is belittled in the 1970 movie "Five Easy Pieces", and a movie buff in "The Dreamers" (2003), set in Paris in 1968, says, with a disdainful air, that she never watches TV. The movie "Network" (1976), famous for the line "I'm mad as hell, and I've not going to take this anymore!", presents the view that television corrupts people, in particular, that TV is more real than real life for those brought up on TV. In Woody Allen's "Manhattan" (1979) there are several comments about television making people stupid, and the main

character quits his job as a writer for TV in disgust over the quality of the shows.

Television did hurt the movie business. Movie attendance fell in the 1950s and 1960s, and thousands of cinemas closed, as depicted in the movie "The Last Picture Show" (1971), which is set in the early 1950s. At first, Hollywood refused to sell or rent movies for TV broadcasting, but in 1954 Howard Hughes decided to sell RKO's film library to television, and in the next few years all the major studios began releasing older movies to television. This created a vast audience for old movies, as depicted in the 1962 movie "What Ever Happened to Baby Jane". It tells the story of an actress who had made movies in the 1930s. She had long been forgotten, but then finds herself popular again in about 1960.

The social impact of television is shown in many movies, notably in the amount of time people give to television. TV Dinners became a way to indicate this: we see one being prepared in "The Apartment" (1960), and in the detective movie "Bullitt" (1968) we see the main character buying six TV Dinners at a market. People who are addicted to TV are often shown, as in "Rain Man" (1988), "28 Days" (2000), and "Requiem for a Dream" (2000). "Bitter Moon" (1992) presents the view that television is the narcotic that keeps married couples together.

The way that television brought events into popular consciousness is also shown. "Across the Universe" (2007), set in about 1968, comments that the live coverage from Vietnam is "bringing the war into people's living rooms", something that is often credited with turning the American public against the war. "A Walk on the Moon" (1999) shows the live viewing, in 1969, of the moon landing and the moon walk and the impact this had on people.

"Wag the Dog" (1997) presents the view that television has destroyed the political process. "Any Given Sunday" (1999) argues that television has corrupted football. In "The Adventures of Rocky and Bullwinkle" (2000) Boris, Natasha, and Fearless Leader buy up cable TV stations and launch RBTV (Really Bad TV) with the plan to immobilize the masses with horrible TV and take over the world. As always, we would be grateful for reports from readers of other interesting movie scenes that involve television. You may contact us at **ieee-history@ieee.org**.

GRANTS AND FELLOWSHIPS

TRUMAN G. BLOCKER, JR. HISTORY OF MEDICINE FELLOWSHIP

The Moody Medical Library of the University of Texas Medical Branch at Galveston is pleased to offer the Truman G. Blocker, Jr. Fellowship to support research related to the history of medicine conducted at the Moody Medical Library.

The Truman G. Blocker, Jr. Fellowship will provide between $2,000 and $4,000 per year to support travel, lodging and incidental expenses for the period between January 1, 2011 and December 31, 2011. Upon completion the recipient will deliver a paper at the University of Texas Medical Branch outlining the research, provide an expense report and a copy of the final research product. The University of Texas Medical Branch also reserves the right to post excerpts from the work, a photograph and biographical material of the Fellow on our website **http://www.utmb.edu/**.

The fellowship proposal must demonstrate that the Truman G. Blocker, Jr. History of Medicine Collections contain resources central to the proposed topic. These collections consist of over 18,000 titles and 10,000 pamphlets and reprints documenting the development of Western medicine and allied sciences.

The archival collections housed at the Moody Medical Library are among the largest and most significant in the history of the biomedical sciences in the southern United States. An inclusive list of these archives may be found at the Texas Archival Resources Online website: **http://www.lib.utexas.edu/taro/index.html**

While preference will be given to applicants who live beyond commuting distance of Galveston, all are encouraged to apply, including graduate students. Applicants should submit a fellowship proposal outlining the subject and objectives of the research project and historical materials to be used, (not to exceed 2 pages), a project budget including travel, lodging and research expenses, curriculum vitae and two letters of recommendation by April 1st, 2011. Award decisions will be made by May 1st, 2011.

Applications should be mailed to:
Robert O. Marlin IV, Archivist
Truman G. Blocker, Jr. History of Medicine Collections
Moody Medical Library
University of Texas Medical Branch
301 University Blvd.
Galveston, TX 77555-1035

ANGULO, A. J.
William Barton Rogers and the Idea of MIT, Johns Hopkins University Press, 2009
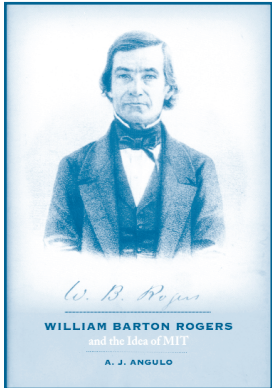
2011 marks the 150th anniversary of the Massachusetts Institute of Technology, arguably the best known institution of technoscientific higher learning in the world. Fortuitously, during the past two years Angulo's biography of MIT's founder, William Barton Rogers, was published. As the title suggests, it rightly focuses on his creation of MIT, but it also relies on excellent archival research to trace his entire life and career. This career was integrally bound up in late 19th century debates in the United States and elsewhere on the role of science and technology in society, in government, and in education. Angulo uses excellent archival research to show that Rogers was a key player in those debates, and that they helped form his ideas of how a technological university should be structured. This book is fascinating reading for anyone interested in the history of science and technology, in the history of higher education and, of course, in MIT itself, and is highly recommended.

In a sense, however, because it is a biography, the story from those angles ends too soon. MIT was founded in 1861; Rogers died in 1882 delivering its commencement address, in which he sought to place it the context of ongoing developments in engineering education. Although —as Rogers claimed— it did have modest success early on, MIT's growth toward world-class status really began with World War I. Therefore, those wishing to learn more about MIT's subsequent impact on technoscientific education (and also to see a different focus on the context of MIT, emphasizing engineering rather than scientific education) might wish to revisit Lawrence P. Grayson's 1993 classic *The Making of an Engineer: An Illustrated History of Engineering Education in the United States and Canada* (John Wiley & Sons, New York). In addition, MIT is sure to produce multiple papers, web pages, lectures and publications as part of its sesquicentennial celebrations (see page 7).

Available from The Johns Hopkins University Press, 2715 North Charles Street, Baltimore, MD, USA 21218-4363; **http://www.press.jhu.edu**, hardcover $55.00, ISBN 978-0-8018-9033-8, xv + 220 pages.

CERUZZI, PAUL,
Internet Alley: High Technology in Tysons Corner, 1945-2005, MIT Press, 2008
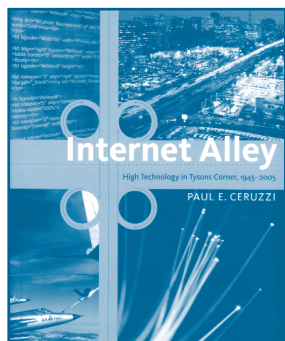
Tysons Corner is a small unincorporated area of about four square miles, approximately ten miles west of Washington, DC. As late as the 1950s, it was a rural crossroads, but by 2000 it was the anchor of the third largest concentration of high-tech employment in the United States, trailing only Silicon Valley and Boston. How did this come about? Who were the people working in the often anonymous office buildings that filled Tysons, and from the 1980s spread west from there out to Dulles Airport? Paul Ceruzzi, senior curator at the Smithsonian Institution's National Air and Space Museum, poses those questions at the start of his book, and then ably answers them.

Ceruzzi traces this nexus to the interplay of two related factors— The first, as he put it "the mule pulling this tractor is the federal government," most specifically the Pentagon east of Tysons in Arlington, Virginia, which began during World War II to use outside consultants in the new fields of systems engineering and operations research, a trend that accelerated, and moved from non-profit to for-profit companies in the 1950s. The second was geography. The companies, often with vague names such as BRD and BDM, needed offices convenient both to their customer, the U.S, Department of Defense at the Pentagon, and to good suburban housing and schools for their employees. By 1957, Tysons Corner sat at the intersection of two new freeways--the Capital Beltway, which brought traffic across the Potomac, and the Dulles Access Road, which brought traffic east towards Washington from the newly opened Dulles International Airport, and had no exits between its start at the airport and its terminus at Tysons Corner. Further, Tysons had a relatively small number of large landowners (who proved willing to sell), and a country government with a progrowth infrastructure. Moreover, one of the first large systems engineering firms to move to Tysons, BDM, encouraged other contractors to move to the same area, creating a critical mass of firms. When the Internet emerged from its Defense Department origins, its firms too naturally located mainly in Tysons Corner, and the corridor running west toward Dulles Airport. This gave Tysons Corner a second, and this time commercially-oriented, high-tech focus. In the 21th century, as military consulting expertise increasingly required advance application of information technology, Tysons and the Dulles Corridor became a more integrated Internet Alley. By early in this century, five out of the thirteen root internet servers were in the Tysons area, and another two were nearby. Thus, the history of Tysons Corner provides an interesting counterexample to the better known stories of Silicon Valley and Boston, with the seed being the government, rather than academe.
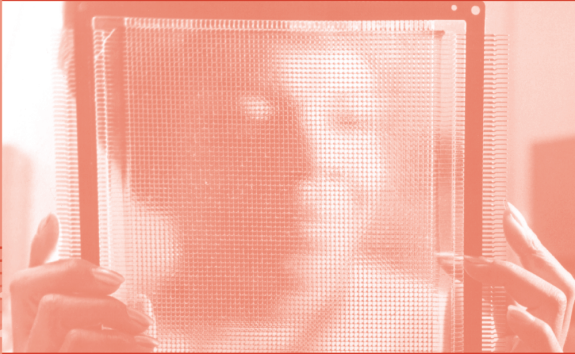
This well written, approachable book is therefore highly recommended to anyone who is interested in the interplay of technology, geography, land use policies and patronage in the shaping of the landscape in which technology is practiced.

Available from The MIT Press, Cambridge, MA, 800-358-0343, fax: +1 617-625-6660 **http://mitpress.mit.edu**, $29.95, cloth, ISBN 978-0-262-03374-9, 219 pp, index.

MISA, THOMAS J., Editor,
Gender Codes: Why Women Are Leaving Computing,
John Wiley & Sons, 2010
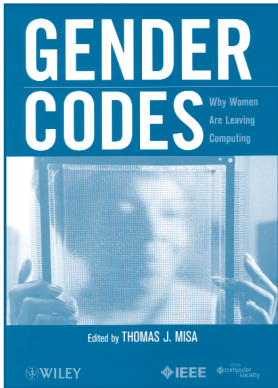
Gender Codes is an important book. Obviously, computing was one of the formative technologies of the late 20th century and continues to be crucial to the 21st century. At the same time, as editor Thomas Misa—Director of the Charles Babbage Institute (CBI—a center for the history of information processing at the University of Minnesota) and a 2011 member of the IEEE History Committee—points out in the first chapter, it appears to have an unfortunate unique status among technologies.

Given the centrality of high technology in economy and society for the past several decades, educators, policy makers, sociologists and others for some time have been concerned with unequal participation in engineering and science careers (the so-called STEM fields) across society, with gender being a particularly important problem. Prior to the 1970s, women in the developed world were — through a variety of factors — excluded from many career paths. In the last three decades of the 20th century, great progress was made, but STEM areas lagged noticeably. Much research and discussion has been published on this topic, based in part on the observation that some STEM fields — such as medicine — have more or less achieved parity, while others — such as mechanical engineering — have never been able to attract significant numbers of women. One of the key data points of the discussion to try to determine causes and solutions was the fact that computing did quite well in recruiting women, while its sister discipline, electrical engineering, was one of the weakest performers.

However, those who continued to pay close attention noticed something shocking. While other STEM fields continued to make greater or lesser progress from higher or lower levels of previous success, beginning in the late 1980s women's participation in computing started to drop, and it has continued to do so. Not only is the apparent exclusion of one-half of the population from a crucial industry bad for both those individuals and society and an obvious call to action, studying this intriguing turn of events should have a lot to tell us about gender and technology in general, a topic of interest both to society at large and to the academy.

Therefore in 2008, CBI brought together historians working on various facets of the issue of women and computing to see if their perspectives could help generate "tools of understanding," and, ultimately, suggestions for action. This book represents the published versions of the papers presented. The contributions are uniformly strong. Although focused on the U.S.A., the volume includes case studies from the U.K., Norway and Greece, and tries where possible to transcend national boundaries—particularly important in a global field such as computing.

In the penultimate chapter, Misa attempts to perceive some common thread in the various case studies. The idea he comes up with has to do with images of computing and images of gender roles. Although gender roles have developed over time, they are constantly a crucial touchstone for society. Many aspects of social behavior are gendered (the French anthropologist Claude Levi-Strauss, founder of Structuralism, thought in essence that all social behaviors were gendered). Computing was such a new phenomenon, however (other forms of engineering had longer antecedents), that at first it defied characterization. However, just as computing was becoming a larger and more critical industry, society, led by the media, came to characterize its practitioners more and more as "nerds." A "nerd," Misa argues, is a masculine construct in our society. Therefore, any improvement in the situation will wither involve a redefinition of gender or, more likely, a redefinition of what sort of person pursues a career in computing.

In the final chapter, Caroline Clarke Hayes, a leading engineering educator and one of the few practitioners involved in the volume, takes up the challenge of solutions and discusses "the prospects for change." Hayes agrees with Misa that the main culprit appears to be image, and she points in some interesting directions for further research and for action, but the task is just beginning. This is a task in which the IEEE History Center can play a role, and we think our readers can and should as well—they can begin with reading this seminal book.

THEODORE S. SAAD REMEMBERED

Gentleman, family-man, mentor and innovator, these are words often used to describe Theodore (Ted) S. Saad of Weston, MA, USA. Ted, an IEEE member for 66 years, passed away peacefully at his home on 25 January 2011 at the age of 90.

A proud graduate of the Massachusetts Institute of Technology (MIT) in 1941, Ted was an accomplished and renowned electronics engineer. In the 1940s Ted worked at MIT's Radiation Laboratories developing radar systems used during World War II. He later established Sage Laboratories in Natick, MA, USA. Ted was co-founder of Horizon House Publications Inc., and was Editor-in-Chief of The Microwave Journal.

Ted's involvement with IEEE began in 1945 and lasted throughout the remainder of his life. He was one of the founders, Past Chairman, and served for many years as Historian of IEEE's Microwave Theory and Techniques Society (MTT-S). In 1992, MTT-S selected Ted as the recipient of its prestigious Microwave Career Award. His work with MTT-S was only one of the many ways he helped IEEE. He also served as a valued member of the IEEE His-tory and Life Members Committees and on the Board of Directors of the IEEE Foundation.

His personal life was also rich and fulfilling. Ted was a devoted husband to the late "Fi" (Abdelnour) and beloved father of Karen Jeanne Saad and Janet Elaine Saad. He was the loving brother of Salwa Hajar, and the late Elaine Patsos and Mona Hadge. He is survived by many cousins, nieces and nephews whom he loved very much.

The Saad Family requests that donations in memory of Ted be made to the IEEE Foundation c/o IEEE Operations Center 445 Hoes Lane Piscataway, NJ 08854-4141 or to MIT Annual Fund 600 Memorial Drive W98-2nd Fl. Cambridge, MA 02139-4822.

In 1991, the IEEE History Center created an oral history with Ted Saad. The interview covered Saad's professional career, with an emphasis on his work at the MIT Radiation Lab during World War II. The oral history can be accessed through the IEEE Global History Network at **www.ieeeghn.org**.

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