

# IEEE History Center

ISSUE 87, November 2011



*The IEEE History Center booth at Sections Congress – highlighting some of the Center’s many activities*

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The newsletter reports on the activities of the IEEE History Center and on new resources and projects in electrical and computer history. It is published three times each year by the IEEE History Center.

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By Michael Geselowitz, Ph.D.

As I write this, the History Center is in the middle of its annual fall fundraising season, which began with my letter to you, our supporters, in early September, and continues with the IEEE dues renewal/Life Member profile cycle. We do this because IEEE and Rutgers funds cover only part of our operating expenses, and the rest need to be raised through charitable donations and grants. I am extremely gratified by the response so far, despite the weak global economy. This newsletter represents a final opportunity for your support in places where making a gift to a nonprofit organization before the end of the year has tax advantages. Of course, I hope that our

programs to help preserve, research and celebrate the heritage of innovation and engineering continue to draw your support and attention year round. And we have much to celebrate. As you will see from Center Activities (p. 3), we have helped a number of IEEE Sections celebrate their centennials this year.

Even more exciting anniversaries are forthcoming in the rapidly approaching New Year. The only "Centennial Section" will be the IEEE Central Indiana Section, but a number of other chronological milestones will be marked as well. On the technical side, the IEEE Communications Society will be celebrating its sixtieth anniversary in 2012, with

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### 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 [ieec-history@ieee.org](mailto:ieec-history@ieee.org)

Current and past issues of the newsletter can be accessed at: [www.ieee.org/about/history\\_center/newsletters.html](http://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](http://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 [ieec-history@ieee.org](mailto:ieec-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.

	<u>Cost Per Issue</u>
Quarter Page	\$150
Half Page	\$200
Full Page	\$250

Please submit camera-ready copy via mail or email attachment to [ieec-history@ieee.org](mailto:ieec-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](mailto:r.colburn@ieee.org).



support from the History Center. The Electron Devices Society, the Engineering in Medicine and Biology Society, the Engineering Management Society, and the IEEE Microwave Theory and Techniques Society are also turning sixty. The IEEE Geoscience and Remote Sensing Society is turning fifty, and the Society for the Social Implications of technology is turning forty.

However, the most exciting anniversary in 2012 is the centennial of the Institute of Radio Engineers (IRE), the younger of IEEE's two predecessor societies. Although it will not be as widely celebrated as anniversaries of the older American Institute of Electrical Engineers, which dates to 1884, the centennial of IRE does mean that 2012 will see the publication of the 100th volume of *Proceedings of the IEEE*, which began in 1912 as *Proceedings of the IRE*. This landmark magazine has published some of the most important articles by some of the most important engineers of the past one hundred years. *Proceedings* will be publishing a range of special material in the upcoming year, including a series of twelve special historical articles by the staff of the History Center. I hope you will have a chance to read and enjoy them. You can learn more at the *Proceedings of the IEEE* centennial website at [http://www.](http://www.ieee.org/publications_standards/publications/proceedings/proc_centennial.html)

*"the most exciting anniversary in 2012 is the centennial of the Institute of Radio Engineers (IRE), the younger of IEEE's two predecessor societies."*

[www.ieee.org/publications\\_standards/publications/proceedings/proc\\_centennial.html](http://www.ieee.org/publications_standards/publications/proceedings/proc_centennial.html).

Finally, I note that, although we celebrated 2009 as the 125th anniversary of IEEE (that is, dated from the founding of AIEE), 2013 will actually be the legal anniversary of IEEE as we know it today; the modern organization formed from a merger of the AIEE and IRE on 1 January 1963. Look for the History

Center to work with 2012 IEEE President Gordon Day, who will be the fiftieth president of our association, to begin the commemoration of IEEE and its impact on its members, their professions, their technologies, and the broader society. We will accomplish this largely through increased attention to our ongoing pro-

grams of IEEE Milestones, oral histories, the IEEE Global History Network, the programs that you, our readers, have been so faithfully supporting. I would also like to draw attention to our new efforts in the e-book area, both on our own and in collaboration with IEEE-USA.

Therefore, let me take this opportunity to thank you again for your support and to wish you and your family a happy holiday season and a healthy and prosperous New Year.

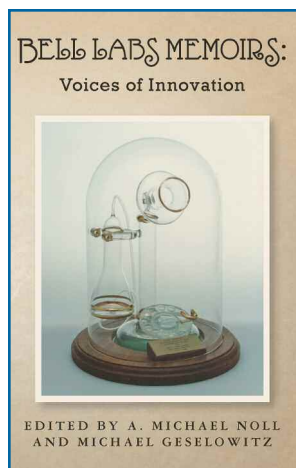
## CENTER ACTIVITIES

### HISTORY CENTER BOOK PUBLISHING

As part of its mission to bring the history of technology to a wide audience, the IEEE History Center has been busy with a number of publishing initiatives. The Center is proud to unveil *Bell Labs Memoirs: Voices of Innovation* which will be available in both hard cover and Kindle® editions from [http://www.amazon.com/Bell-Labs-Memoirs-Innovation-Geselowitz/dp/1463677979/ref=sr\\_1\\_1?s=books&ie=UTF8&qid=1320768862&sr=1-1](http://www.amazon.com/Bell-Labs-Memoirs-Innovation-Geselowitz/dp/1463677979/ref=sr_1_1?s=books&ie=UTF8&qid=1320768862&sr=1-1) in November 2011, and *US Federal Government & Innovation*, available now as an e-book to download from IEEE-USA's *Today's Engineer* store. [https://salaryapp.ieeeusa.org/rt/salary\\_database/shop?&main.ctrl=contentmgr.detail&main.view=ecom.content.detail&main.id=77111&top.title=The+US+Federal+Government+and+Innovation+-+A+Brief+History](https://salaryapp.ieeeusa.org/rt/salary_database/shop?&main.ctrl=contentmgr.detail&main.view=ecom.content.detail&main.id=77111&top.title=The+US+Federal+Government+and+Innovation+-+A+Brief+History)

#### BELL LABS MEMOIRS: VOICES OF INNOVATION

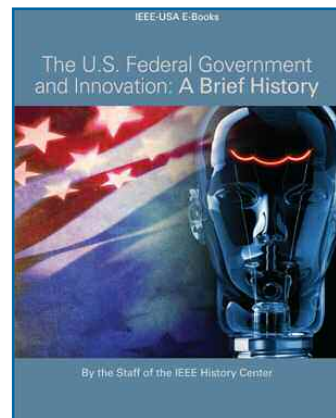
The innovative spirit and creative energy of Bell Labs during the directorship of William Baker are described by twelve people who worked there. Through the first-hand accounts of: John Pierce, father of communications satellites; Manfred Shroeder, speech encoding; Walter Brown, de-



veloper of silicon semiconductors; Carol MacLennan, computers and the *Ulysses* spacecraft; Alan Chynoweth, materials research, David Dorsi, expert glassblower; Edward Zajac, submarine cables and economics research; Edwin Chandross, optical memories and organic materials (inventor of the now ubiquitous light stick); Italo Quinto, chauffeur to William Baker; Mohan Sondhi, inventor of the adaptive echo canceller; William Keefauver, Bell Labs' general patent attorney; and lastly, William Baker himself, the culture of Bell Labs comes to life.

#### US FEDERAL GOVERNMENT & INNOVATION: A BRIEF HISTORY PUBLISHED AS E-BOOK

The IEEE History Center is proud to announce the publication of an electronic book, *US Government & Innovation: A Brief History* in conjunction with IEEE-USA's magazine *Today's Engineer*. The book outlines the history of U.S. government involvement in technological innovation, which dates from the 1790s. The U.S. Government's fostering of technologies such as the Morse telegraph, Hollerith's punched-card machines, radio, radar, ENIAC and



Continued on Page 4

successor computers, semiconductors, and lithium batteries is described. As the debate continues about the role of government in research, the staff of the IEEE History Center hopes that this book will illuminate the discussion, and bring some of the rich history to light. *U.S. Federal Government & Innovation: A Brief History* can be purchased for download at: [https://salaryapp.ieeeusa.org/rt/salary\\_database/shop?&main.ctrl=contentmgr.detail&main.view=ecom.content.detail&main.id=77111&top.title=The+US+Federal+Government+and+Innovation++A+Brief+History](https://salaryapp.ieeeusa.org/rt/salary_database/shop?&main.ctrl=contentmgr.detail&main.view=ecom.content.detail&main.id=77111&top.title=The+US+Federal+Government+and+Innovation++A+Brief+History) Member Price is \$4.79. Non-member price is \$5.99.

The genesis of the E-book series was that – for more than ten years – the IEEE History Center has written a monthly history column for *Today's Engineer*, an on-line magazine produced by IEEE-USA (<http://www.todaysengineer.org/>). Earlier this year, a conversation with IEEE-USA staff led to the Center writing a

three-part series on the history of the role of the U.S. federal government in advancing technology. The series was so well received that, even before the final installment was published, IEEE-USA staff were printing copies to circulate in the corridors of power in Washington, DC. A few years ago, IEEE-USA had started an E-book publishing operation, so this series of articles seemed like a good fit. Re-edited and with a new introduction and conclusion, *The US Federal Government and Innovation - A Brief History* is now available from the IEEE-USA E-Book site, <http://www.ieeeusa.org/communications/ebooks/>. The success of this venture has led to discussions with IEEE-USA about e-publishing thematic collections of our old columns with new introductions. Keep your eye on IEEE-USA's website or our website to follow this exciting new development.

The IEEE History Center is preparing a second e-book on the history of telecommunications which should be available via *Today's Engineer's* on-line shop in late November.

## GHN UPDATE

### LIQUID CRYSTAL DISPLAY EVOLUTION - SWISS CONTRIBUTIONS

Recently submitted is a First Hand History submitted by Peter Wild, an employee at the Brown, Boveri Research Center in Baden, Switzerland. Wild gives his account of his work on the LCD in the late 1960s and early 1970s which arose out of a project under "Medical Electronics", a partnership between the Brown, Boveri Research Center and Hoffman-LaRoche. This patented work would later be used in the LCD screens of various Swiss wristwatches.

To view Wild's full account, go here:

[http://www.ieeeghn.org/wiki/index.php/First-Hand:Liquid\\_Crystal\\_Display\\_Evolution\\_-\\_Swiss\\_Contributions](http://www.ieeeghn.org/wiki/index.php/First-Hand:Liquid_Crystal_Display_Evolution_-_Swiss_Contributions)

### LEARNING ABOUT COMPUTERS, PROGRAMMING, AND COMPUTER SYSTEM DESIGN CIRCA 1963 - 1981

Dave Walden, a computer pioneer who worked for Bolt Beranek and Newman and was involved with the creation of ARPANET tells his story about how he learned the technology of computing in the days when university computer science departments were still a new idea.

To view Walden's account, go here:

[http://www.ieeeghn.org/wiki/index.php/First-Hand:Learning\\_About\\_Computers,\\_Programming,\\_and\\_Computer\\_System\\_Design\\_Circa\\_1963\\_-\\_1981](http://www.ieeeghn.org/wiki/index.php/First-Hand:Learning_About_Computers,_Programming,_and_Computer_System_Design_Circa_1963_-_1981)

You can contribute your own First Hand History by following this link:

<http://www.ieeeghn.org/wiki/index.php/Special:FirstHandHistories>

### WOMEN IN HIGH TECHNOLOGY INDUSTRIES

With the assistance of Lauren Antolino, a volunteer from Rutgers University, the History Center has posted this discussion panel given at the 1973 IEEE WESCON conference devoted to women in high technology industries. The panel is composed of execu-

tives who have had personal experience with the problems connected with the achievement of improved utilization of women in managerial and professional positions within high technology industries. Discussed are the motivational forces that have to take place in industry for women to advance, the aspiration level of women, upward mobility including women in management, and various types of sexism and discrimination women encounter in the field.

To view the transcript of this panel, go here:

[http://www.ieeeghn.org/wiki/index.php/Archives:Women\\_in\\_High\\_Technology\\_Industries](http://www.ieeeghn.org/wiki/index.php/Archives:Women_in_High_Technology_Industries)

### IEEE AWARD WINNER BIOGRAPHIES

With the assistance of graduate assistant Jessica Herzog, the History Center has added more than 200 biographies of various IEEE Award Winners to the Global History Network. Both IEEE Medals and IEEE Field Awards are included, and we have also expanded the IEEE Awards page to include links to all IEEE Awards, including discontinued awards. The IEEE Awards page on the Global History Network can be viewed here:

[http://www.ieeeghn.org/wiki/index.php/IEEE\\_Awards](http://www.ieeeghn.org/wiki/index.php/IEEE_Awards)



## “THE AMERICAN DYNAMO” – HISTORY CENTER WORKS WITH LION TELEVISION ON PBS DOCUMENTARY ABOUT THE GRID

For much of 2011, staff of the IEEE History Center have been providing historical advice and assistance to Lion Television for its documentary “The American Dynamo,” which will air on PBS stations in January or February 2012. “The American Dynamo” is one of a four-part series, “America Revealed.” It explores the energy America uses to propel itself: including the extraction of valuable ore and oil; the creation of electricity using water, wind and nuclear power; and the intricacies of the electrical distribution grid.

Based upon the BBC’s award-winning “Britain From Above,” “America Revealed” will show viewers how a violent lightning storm can wreak havoc on a regional power grid, sending high-voltage surges across miles of transmission lines – even into a typical American living room – and threatening the stability of the whole grid, while a power station supervisor fights the danger of a multi-state blackout.

“America is a nation of intricate networks that keep the country running every minute, every hour of every day,” says Nick Catliff, executive producer and president, Lion Television. Tony Tackaberry, executive producer and CEO, Lion Television,

adds: “The aerial photography, along with a range of pioneering visual techniques the series will use, will give viewers a glimpse of the nation as they’ve never seen it, while the previously untapped data will offer new insight into the forces that shape our everyday lives.”

“America Revealed” will be a completely new experience for PBS viewers,” says John F. Wilson, PBS’s chief television programming executive. “This series employs an imaginative new form of storytelling, bringing visual imagery and information together to offer viewers an unprecedented way to fully explore and understand the country where we live and work.”

With offices in London, New York and Glasgow, Lion Television ([www.liontv.com](http://www.liontv.com)) is one of the most successful independent production companies in the U.S. and UK. They have produced programming for PBS, MTV, Fox, History, E!, Bravo/NBC, TLC, Discovery Channel, Discovery Health, Animal Planet, Style, History Channel, Planet Green, MSNBC, CBS, A&E, HBO, VH1, Court TV and National Geographic, among others.

For more information about program times, please see <http://www.pbs.org/about/news/archive/2011/pbs-america-revealed>

## THE HISTORY CENTER AT SECTIONS CONGRESS 2011

Sections Congress 2011 took place in San Francisco and the History Center had strong presence there. In the breakout session “Preserving Section History”, Dr. Michael Williams, the Chair of the History Committee, and Dr. Michael Geselowitz, Staff Director of the IEEE History Center, underscored the importance for Sections to both preserve and honor their history. They explained that historical activities not only provide institutional memory for improving operations, but also involve members, raise member pride in IEEE, and serve as a potential outreach vehicle to the local community. Drs. Williams and Geselowitz also gave an overview of the tools available, through the IEEE Global History Network (GHN), to Sections to preserve and document their histories. This presentation was well attended.

In the poster sessions, Dr. Michael Geselowitz showcased the IEEE Milestone Program by relating the successful effort of the Long Island Section to honor the numerous technical accomplishments of its members through the use of Mile-

stones. Special mention was made of the Grumman Lunar Module, which had just been dedicated a month earlier. This module was the first vehicle to land man on an extraterrestrial body, the Moon.

The History Center also set up an information booth to explain all of IEEE history activities and programs. In addition to various handouts, there was an ongoing demonstration of the GHN. Dr. John Vardalas, Outreach Historian, Dr. Michael Geselowitz, and volunteers from the History Committee were at the booth to provide further details to the Sections Congress delegates. The booth produced considerable interest and many fruitful follow-ups with IEEE members. A unique feature of the booth was the sponsorship of the Almond Board of California who provided free almond packs to all those who visited our booth. Why almonds? California produces nearly 80% of the world’s supply of almonds, and since Sections Congress was in California, we thought that this agricultural product would complement the IEEE high tech face of California.



## PUBLIC HISTORY OF SCIENCE AND TECHNOLOGY

On 13 and 14 October, Center Director Michael Geselowitz attended a conference at the University of South Carolina in Columbia, SC, USA, on the Public History of Science and Technology. Believed to be the first gathering of its kind, it attracted some fifty persons from universities, museums and historical centers in the U.S., Canada, and the U.K. The existence of such a conference shows the growing interest among public historians ("public history" is history that is seen, heard, read, and interpreted by a popular audience; public historians expand on the methods of academic history by emphasizing non-traditional evidence and presentation formats, reframing questions, and in the process

creating a distinctive historical practice) in technology, which is – after all – the major force that shaped the modern world. Dr. Geselowitz's contribution was entitled "The Public History of Science & Technology: The Role of Professional Associations." He wanted to make sure that the museum and other historical professionals kept in mind the role of the engineer both as an audience for history of technology, and as a partner in the preservation and dissemination of the history of technology. The IEEE History Center has a key role to play as a communication channel between engineers and historians.

## IEEE VANCOUVER SECTION CENTENNIAL CELEBRATION

The IEEE Vancouver Section is celebrating its centennial in 2011 with a series of events and activities. The highlight of the celebration activities is that the Section has commissioned the design and construction of a special historic plaque, which will be installed in a permanent public monument. The plaque was formally unveiled and dedicated before the members of the Vancouver Section on 23 August 2011, the actual Section anniversary. The city of Vancouver has agreed to have the plaque publically installed on public land near Vancouver's famous Science World Museum. You can follow the progress of this and the other Section centennial activities on a special web page they established, <http://vancouver.ieee.ca/centennial>. As part of the ongoing festivities, a special dinner was held on Monday 27 June, where History Center Director Michael

Geselowitz delivered a lecture on "From Soft Woof to Software: 100 Years of Vancouver & IEEE." The lecture traced parallel history of IEEE and IEEE-related technologies, with particular attention to events in Vancouver.

On Tuesday 11 October, Dr. Geselowitz also spoke on this topic, tailored to the local geography, at the centennial celebration of another IEEE Section, the Southeastern Michigan Section. Their gala reception and dinner was appropriately held at the world-famous Henry Ford Museum (<http://www.thehenryford.org/>) which includes, among other technological treasures, Thomas Edison's original Menlo Park laboratory. The special centennial website established by the IEEE Southeastern Michigan Section can be found here: [http://ewh.ieee.org/r4/se\\_michigan/100/](http://ewh.ieee.org/r4/se_michigan/100/)

## IEEE HISTORY CENTER ESTABLISHED ON NEW UNIVERSITY OF CALIFORNIA CAMPUS

The University of California, Merced (UC Merced) is the newest campus in the University of California system, which is now made up of ten campuses. Ground for the new campus was broken on 25 October 2002. Although the first day of classes was 6 September 2005, construction continues on new buildings. One Engineering and Science building has been built; work on the second will begin soon. In early 2010, discussions started between UC Merced and IEEE to set up an IEEE History Center on the new campus. Dr. Michael Williams, then Chair of the IEEE History Committee, saw the value to IEEE in setting up a History Center on a university campus that was still in its formative years. By the summer of 2010, a memorandum of understanding had been signed between the University of California and IEEE to establish an IEEE History Center on the UC Merced campus. Dr. John Vardalas, who had been telecommuting part-time to the History Center from California, relocated his work as an Outreach Historian for the History Center to UC Merced full time.

The then UC Merced Chancellor, Dr. Sung-Mo (Steve) Kang -- who is also an IEEE Fellow -- saw the value of offering courses in the history of technology to engineering majors. With the active support of the Dean of Engineering and the Dean of Social

Sciences, Humanities & Arts, and the support of the curriculum committees of the two faculties, Vardalas and Dr. Michael Geselowitz -- the Staff Director of the IEEE History Center -- proposed two survey courses in the history of technology. Modeled on similar courses that History Center staff have taught at Rutgers, the first was to cover the story of human technology from pre-historic times to the dawn of the Industrial Revolution, while the second course would start at the Industrial Revolution and move to the 21st Century. The two courses received official university approval in early 2011, and are unique in being listed in both the School of Social Sciences, Humanities & Arts and in the School of Engineering (the analogous courses at Rutgers are listed only in the school of Arts & Sciences). From the perspective of the UC Merced engineering faculty, these two courses provide an excellent opportunity for engineering students to satisfy the "engineering in society" requirement in the ABET standards.

With his office on the UC Merced campus, Dr. Vardalas will teach the two survey courses in the history of technology and -- using California as a full-time base -- he will now focus his historical outreach duties for IEEE more actively on the members and organizational units of the Pacific Rim.

## HISTORY CENTER GRADUATE ASSISTANTS AND INTERNS FOR 2011-2012

**Mekala Audain** is a Ph.D. candidate in the history department at Rutgers University. She earned a B.A. in History and Women's Studies from Florida International University in 2008. Her dissertation will examine slaves in Louisiana and Texas who escaped to Mexico from 1803 to 1865. Her research will also investigate to what degree former slaves and free blacks adapted to their new lives in nineteenth century northern Mexico by focusing on language barriers, racism, and the threat of recapture as some of the obstacles they faced.

**Judge Glock** graduated from the College of William and Mary with a B.A. in History in 2004, and returned to William and Mary to receive an M.A. in American History in 2008, where he completed a thesis on the nation's first electric streetcar system, in Richmond, Virginia. He also spent a year teaching English in Suzhou, China, and spent two years doing historical research on Native American and environmental lawsuits for a contractor with the Department of Justice. He started his PhD studies at Rutgers in 2010, and is focusing his research on federal housing policy, including rural electrification, in the New Deal.

**Jessica Herzog** earned her B.A. in History and Women's Studies from the Pennsylvania State University and her M.A. in Russian and East European Studies from the University of North Carolina at Chapel Hill. She is a second year doctoral student at Rutgers, studying modern European history and women's and gender history. Her research focuses on travel and leisure in Eastern Europe during the cold war era. Currently, she is examining the development of Hungary's tourism industry in the 1960s and 1970s.

**Jazmin Puicon** is currently a second year doctoral student in Women and Gender History in Latin America. She earned a BA in Spanish and Latin American & Caribbean Studies from Union College, writing a senior honors thesis that compiled oral histories from working class women and men in the sugar cane-producing communities of El Valle del Cauca, Colombia. She also earned a MA from New York University in Latin American & Caribbean Studies, where she revisited these same communities on the eve of Ingrid Betancourt's release by the FARC to the Colombian government.

As a witness/participant in the peace marches that followed this historic event, her MA thesis focused on the media production and representation of national debates and discussions of peace, war, and violence. Currently, Jazmin is re-

searching the development of the sugar cane labor unions in El Valle del Cauca, Colombia, specifically focusing on the role of women and Afrocolombians within these unions, and how their participation (or lack thereof) influenced the politics of gender and ideas of citizenship in the country. She is interested in the technological advances within the sugar industry, its turn to ethanol production, and how those changes may parallel other technological advances within the paramilitary, the government, the *guerrilla*, and *narcotráfico* in Colombia.

In her free time, she likes to play the piano, cook delicious Peruvian/Colombian dishes, dance Latin music (salsa, bachata, cumbia), and spend time with her family all over the world. She is excited to be at the IEEE History Center and is looking forward to having science and technology inform her future research on women and gender in Latin America.

**Arthur Shockley** received a BA in History and BS in Microbiology from the University of Georgia. Before deciding to enter the history graduate program here at Rutgers, he worked as a geneticist at Emory University. He is now a second year PhD student in Modern European History with a minor in Science, Technology, Environment and Health. He hopes to write a dissertation on the history of emotions and sense perception using recent advances in cognitive neuroscience

**Lance C. Thurner's** dissertation research focuses on the industrialization of Mexican agriculture in the post-War era. In particular, his work examines the relationship between the institutional aspects of industrialization, the agricultural and biological sciences, and the social reforms that were integrated into modernization programs. Working at the intersection of Latin American and U.S. history as well as the history of science, Lance's research aims to understand the transmission of technologies in the political and economic contexts of globalization.

**Christopher Potter** (undergraduate intern in public history) is currently earning his BA in History and minor in Political Science at Rutgers University. His particular interest in history is the American Civil War era. He is currently a senior and hopes to eventually become a grade school or college level educator. In his free time he enjoys philanthropy, hiking, skiing, and swimming. While at the Center, Christopher will be researching and writing material for the IEEE Global History Network on electrical applications during the American Civil War, such as torpedo/mine detonation, and telegraphy.

## IEEE TECHNICAL TOUR OF JAPAN – 20-28<sup>TH</sup> MAY 2012



The IEEE Technical Tour of Japan celebrates the history of electrical engineering achievements and the cultural heritages in Japan. Organized by the IEEE Japan Council History Committee and the IEEE Tokyo Section Life Members Affinity Group, with the cooperation of the IEEE Kansai, Nagoya, and Tokyo Sections, it is the third IEEE Technical Tour of the IEEE Life Members Committee. The tour will start on 20 May 2012 and end on 28 May 2012. The itinerary includes visits to IEEE Milestones, as well as to related museums and cultural heritages in the districts of Nara, Kyoto, Nagoya, Tokyo, and Yokohama. The tour is planned with Life Members and their companions in mind, and the pace of the tour is set for seniors; however, all IEEE members are welcome.

**Brief Itinerary:** Kyoto, Sharp Corporation's Historical Hall, Temples in Nara, Lake Biwa Canal Museum, Kyoto Shrines, Railway Park in Nagoya, Yosami Memorial Museum and Toyota Commemorative Museum, NHK Museum of Broadcasting, Seiko Institute of Horology, Toshiba Science Museum, JVC VHS Commemorative Hall, Edo-Tokyo Museum, Akihabara.

**Additional tours:** Japan Travel Bureau (JTB) provides pre-tour and/or post-tour plans upon the request of participants.

**Registration:** The final arrangements will appear in the December IEEE Life Members Newsletter, and registration will open on 1 January 2012. Please visit [www.ieee.org/go/lm\\_tour](http://www.ieee.org/go/lm_tour) or e-mail [lm-tours@ieee.org](mailto:lm-tours@ieee.org) with questions about the tour.

## 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://smashinghub.com/history-of-computers.htm> A computer history timeline, with pictures, from 1940 onwards.

<http://www.books4cause.com/> An organization which collects old books and runs book donation campaigns which help fund and support various initiatives locally, nationally, and around the world.

## HISTELCON 2012 – PAVIA, ITALY, 5-7 SEPTEMBER 2012



*University of Pavia. Image courtesy of Giorgio Gonnella and Wikipedia Commons*

HISTELCON 2012, is organized by IEEE Italy Section, IEEE Region 8 and the Research Centre CIRSTE operating in the Museum of Electrical Technology at the University of Pavia, in conjunction with the ninth Historical Conference held by the IEEE History Committee and the IEEE History Center. HISTELCON 2012 aims to increase the understanding of the origins and of the early developments of electrical -- and in particular of telecommunications -- technologies.

Contributions are invited in areas including, but not restricted to: Origins and early developments of electro-technologies, milestones in different early and modern fields of electro-technology, scientists and technologists involved in the above, museum items and educational methods illustrating the above. Participants with various backgrounds such as historians, museum curators and researchers are welcome. The official language of the conference will be English.

Interested participants are invited to submit their abstracts for oral or poster presentations to the Conference Secretariat by electronically sending a 500 word abstract, in English, with the title, the name(s) and affiliation(s) of the author(s) in MS Word format. All abstracts will be reviewed by the Conference Technical Program Committee. Presented papers will be included in the Conference Proceedings and in IEEE Xplore. For each presented paper or poster, one presenter will have to register for the Conference. Abstract deadline: 15 January 2012, abstract acceptance: 1 March 2012, full paper deadline: 30 June 2012, early registration deadline: 1 July 2012

Final Programme: 1 July 2012. University of Pavia, Museum of Electrical Technology, Via Ferrata, 6 – 27100 Pavia, <http://www.histecon2012.org>, [histecon2012@ieee-sezioneitalia.it](mailto:histecon2012@ieee-sezioneitalia.it)



## THE BELL LABS TECHNOLOGY SHOWCASE

Bell Labs is widely regarded as the most important industrial research laboratory of the 20th century, with achievements ranging from the invention of the transistor to information theory to Unix. In 2010, Bell Labs opened a fascinating new exhibit in the lobby of its famous Murray Hill laboratories. Murray Hill today is the headquarters of Bell Labs as well as the U.S. operations of its current parent, the Alcatel-Lucent Corporation.

This handsome and substantial exhibit highlights the many achievements of Bell Labs, from the 19th century (before it was called Bell Labs) up until today. Among the highlights are a replica of Alexander Graham Bell's first telephone, the first transistor (yes, the actual one), early lasers, an early commercial vacuum tube, an early sound motion picture projector, a sample of the first submarine telephone cable, one of Claude Shannon's wooden telephone relay mice on a replica of the maze in which it ran, an early Unix manual, and Clinton Davisson's 1937 Nobel Prize certificate. The exhibit is divided thematically into four areas—Connecting the World, Managing Information, Advancing Sustainability, and Understanding the Universe. Each area contains a mix of historical and contemporary

material, and the relations between items and topics are well and clearly explained. Each of the many artifacts is accompanied by a clear caption explaining its importance, and placing it in the overall context of Bell Labs achievements. There are also several monitors offering videos providing additional depth of different (largely contemporary) topics. There is also a section displaying some of the many awards given to Bell Labs and its researchers. The exhibit's most innovative feature is a wall of interactive touch-screen "white boards" (actually interactive touch-screen video monitors) with which the visitor can interact in a large variety of ways: by topic; by researcher; by historical era, and call up – for example – historical video clips, or connections between researchers and areas, or a large database of published Bell Labs papers. A good video overview of the exhibit can be found at <http://www.youtube.com/watch?v=481ZhoPA98M>

The exhibit is at Bell Labs/Alcatel-Lucent, 600 Mountain Ave, Murray Hill New Jersey, 07974. As it is in the building lobby outside security, it is open to the public Monday through Friday during normal business hours. Arrangements in advance are not needed.

## GRANTS AND FELLOWSHIPS

### PROGRAMS OF SUPPORT FROM THE IEEE HISTORY CENTER

**The IEEE History Center offers two 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., and a dissertation fellowship for an advanced graduate student or recent Ph.D.** The internship and the dissertation fellowship are funded by the IEEE Life Members Committee. The internship requires residence at the IEEE History Center, on the Rutgers University Campus in New Brunswick, New Jersey, USA; there is no residency requirement for the dissertation fellowship.

#### **IEEE LIFE MEMBER FELLOWSHIP IN ELECTRICAL HISTORY**

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 or her 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 up to \$3,000.

Reimbursable research expenses include economy class travel to visit archives, libraries, historical sites, or academic conferences, either to hear papers or to present one's own work. Hotel stay, meals while travelling, copying costs, reprints of scholarly articles, and books directly pertaining to research are reimbursable. Any research trip expected to cost more than \$1000 must be approved in advance by IEEE History Center Staff. Examples of non-reimbursable expenses include, but are not limited to: licensing fees for images for book version of thesis (book publisher should pay for those), computers or computer peripherals, digital cameras, clothing, and office supplies (paper, pens, printer cartridges, CDs, memory sticks, etc.).

Recipients are normally expected to take up the Fellow-

ship in the July of the year that it is awarded. Fellowship checks are normally mailed to the Fellow quarterly in July, October, January, and April. For Fellows in the southern hemisphere who follow the southern hemisphere academic year, arrangements can be made to mail the checks in December (two quarters worth), March, and June.

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/web/aboutus/history\\_center/about/fellowship.html](http://www.ieee.org/web/aboutus/history_center/about/fellowship.html). The deadline for completed applications is 1 February. Applicants will be notified of the results by 1 June.

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 LIFE MEMBER INTERNSHIP**

Scholars at the beginning of their career studying the history of electrical technology and computing are invited to contact the Cen-

ter 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 at 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 will be considered. Interns are also encouraged 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.D.s 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.

IEEE and Rutgers are AA/EQ 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, [ieee-history@ieee.org](mailto:ieee-history@ieee.org), [http://www.ieee.org/web/aboutus/history\\_center/index.html](http://www.ieee.org/web/aboutus/history_center/index.html)

## BAKKEN TRAVEL GRANTS 2012

Scholars and artists are invited to apply for travel fellowships and grants, which the Bakken Museum in Minneapolis offers to encourage research in its collection of books, journals, manuscripts, prints, and instruments. The awards are to be used to help defray the expenses of travel, subsistence, and other direct costs of conducting research at the Bakken for researchers who must travel to the Twin Cities and pay for temporary housing in order to conduct research at the Bakken.

**1. Visiting Research Fellowships** are awarded up to a maximum of \$1,500; the minimum period of residence is two weeks, and preference is given to researchers who are interested in collaborating informally for a day or two with Bakken

staff during their research visit.

**2. Research Travel Grants** are awarded up to a maximum of \$500 (domestic) and \$750 (foreign); the minimum period of residence is one week.

The next application deadline for either type of research assistance is **February 17, 2012**.

For more details and application guidelines, please contact: Elizabeth Ihrig, Librarian; The Bakken Library and Museum, 3537 Zenith Avenue So., Minneapolis, MN., 55416; tel 612-926-3878 ext. 227, fax (612) 927-7265; e-mail [Ihrig@thebakken.org](mailto:Ihrig@thebakken.org) [www.thebakken.org](http://www.thebakken.org)

## OBITUARIES

### IN MEMORIAM WALLACE READ

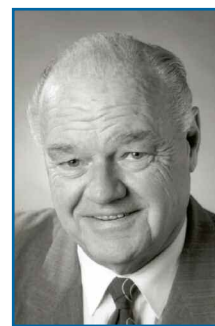
The IEEE History Center lost one of its staunchest supporters in August when Wallace (Wally) Stanley Read, 1996 IEEE President, died 16 August 2011 in Cornerbrook, Newfoundland, Canada. Read was a long-time IEEE member and active volunteer since 1965, serving ten years on the IEEE Board of Directors before being elected president. Read, an IEEE Life Fellow, held many leadership roles including IEEE secretary and treasurer, director of IEEE Region 7 (Canada), chair of the IEEE Newfoundland and Labrador Section, and vice-president of the IEEE Standards Association. He also was a member of the IEEE Foundation Board of Directors from 1995 to 2003 and served as Chair of the Trustees of the IEEE History Center from 2003 to 2007. Read was a passionate supporter and promoter of IEEE history and the history of technologies in IEEE's fields of interest. He was active in the proposal and dedication of a number of IEEE Milestones in Electrical Engineering and Computing, most notably the Landing of the Transatlantic Telegraph Cable, and Marconi's Reception of the First Transatlantic Wireless Signal, both in his native Newfoundland.

Born in Newfoundland, Canada, Read received his bachelor of electrical engineering degree from Nova Scotia Technical College in 1951. Upon graduation, he entered the pulp and

paper and hydro-electric power industries in his native province. There he quickly progressed through a distinguished career in utility executive positions. He changed the face of Newfoundland and Labrador by promoting hydro-electric development and establishing appropriate operational methodologies for electric power utilities.

In 1985 he became the first full-time president of the Canadian Electricity Association in Montreal, Quebec. In that position, Read worked to promote the interests of Canadian electric utilities and acted as spokesperson on issues of national concern to its members.

Over the years, Read received numerous awards including the 2005 IEEE Charles Proteus Steinmetz Award, the IEEE Standards Association International Award, the IEEE Power Engineering Society's Power Life Award, the Canadian Standards Association's John Jenkins Award and the Sir John Kennedy Medal. In 2003 Read was appointed a Member of the Order of Canada, the country's highest civilian honor.





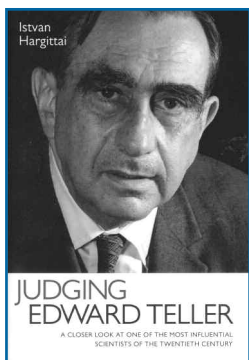


The third portion of the book, covers the spread of information theory through many areas of human thought, and the trans-formation of these areas by application of Shannon's ideas, beginning with psychology and other social sciences and the idea of memes as units for transmitting ideas among people. Gleick follows information theory into physics, beginning with entropy, and ultimately into quantum mechanics. Gleick notes something that, at least to this reader had never before been obvious, namely that information theory formed a necessary theoretical underpinning for Watson and Crick's work on DNA, and the subsequent work by others on the human genome. And he follows information theory into applied mathematics and computing, noting how Moore's law applies as much to the information stored on computer chips as it does to the hardware itself, leading to the condition he calls "after the flood," the contemporary world of a surfeit of or a an overwhelming flood of information. Interestingly, he notes how Wikipedia success is an example of Shannon's concept of the capability to transmit information through a noisy channel. While some of the information contributed to Wikipedia is noise (that is, of dubious quality) the mass of people contributing to Wikipedia tends to bring its ever growing number of articles towards an ever evolving consensus; a reality that cannot be pinned down in time. Thus, Wikipedia is something very different than a traditional encyclopedia, such as the Britannica, which seeks to provide an authoritative set of articles that captures the scholarly consensus as of the time it was written. Wikipedia articles may approach reliability, but not authority.

This short review only begin to recount the ways in which *The Information* explains information theory and how this fundamental concept has come to underlay much of both thought and civilization in the decades since Shannon's conception. For the full picture, you will be best served by reading the excellent book.

Available from Random House Inc. (212) 782-9000. <http://www.randomhouse.com>. \$29.95, Cloth, ISBN 978-0-375-42342-7, 544 pp, index.

## HARGITTAI, ISTVAN, *Judging Edward Teller*, Prometheus Books, 2010



István Hargittai's biography of Edward Teller illuminates not only the genius of one of the most influential scientists of the twentieth century, but also the unscrupled tenacity and controversial decisions of one of the cold war's most ardent nuclear boosters. Teller, the "father of the hydrogen bomb," came to the United States in 1935 along with a small cadre of other Hungarian physicists that included Theodore von Kármán, Leo Szilard, Eugene

Wigner and John von Neumann (Hargittai's previous book, *Martians of Science*, is a collective biography of the five). In 1939, while the World War was still gathering momentum, Teller and Szilard notified Albert Einstein of recent experimental developments

that proved it was theoretically possible to create a nuclear weapon, a weapon which was likely to become a German invention. The outcome of this meeting was Einstein's famous letter to Franklin D. Roosevelt that initiated the U.S. government's nuclear program. When J. Robert Oppenheimer was placed at the head of the Manhattan Project he quickly recruited Teller, whose eventual contribution of the Ulam-Teller solution was the crucial turning point in advancing nuclear weapons from the A-bomb (using nuclear fission) to the H-bomb (using fission and fusion). Throughout this telling, the casual reader will especially appreciate the author's ability to describe clearly the technical and theoretical problems facing the scientists of the Manhattan Project. Hargittai also intersperses the narrative with page-long biographies of key figures who might not be known to all readers, resulting in a book accessible and of interest to all audiences.

For the sociologist of science and for Hargittai himself, Teller's life is of particular interest for what happened after the bomb. When McCarthy-era suspicions eventually came to bear on Robert Oppenheimer in 1954, American physicists uniformly refused to testify against their collaborator and leader, that is, all except for Edward Teller. Although his testimony was not overly damning, Teller's choice to testify quickly alienated him from his colleagues. In the eyes of many, Teller had betrayed one of their own and thereby ostracized himself from the "scientific community."

Hargittai's emphasis is on understanding Teller the person, not science or scientists. This is likely to leave the specialist reader yearning for a more sophisticated and theoretical treatment of Teller's ostracism and its significance for the culture of American science at its moment of utmost prestige. Nonetheless, Hargittai's book is a significant contribution to our understanding of the internal workings of post-war science and the relationship of scientific institutions to the political establishment. The former comes to light in Hargittai's attention to the personal motivations of Teller's testimony, in particular, his often single-minded pursuit of a nuclear strategy against the Soviet Union, a goal in his eyes worthy of unsavory, realpolitik means even within Los Alamos. The latter is developed as Teller engrossed himself in politics, serving as the voice of science for conservative cold war strategists, while scientists themselves continued to refuse his handshake. But as for Teller the man, by the end of Hargittai's biography he comes across as brash and overconfident, troubled more by the reactions of others to his behavior than by his own intentions, but not immune to doubt, regret and second thoughts.

Available from Prometheus Books, +1 716 691 0133 [www.prometheusbooks.com](http://www.prometheusbooks.com) \$32.00, hardcover, ISBN 978-1-61614-221-6, 575 pp, illus.





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is easier than you think.

### IEEE History Center Fund

The IEEE History Center Fund is one of the 125+ funds administered by the IEEE Foundation. It relies on charitable donations to sustain and expand its mission to preserve, research and promote the heritage of electrical and information technologies and sciences. Visit [www.ieee.org/history\\_center](http://www.ieee.org/history_center)

The IEEE Foundation provides resources to advance education, innovation and preservation. Together we can discover new solutions, recognize technology pioneers and honor the legacy of IEEE. Make a gift and show your commitment to technology and humanity. **Imagine the difference you can make.**

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